SOUTHERN CALIFORNIA'S COMPUTER MAGAZINE

MAY 16, 1994 • #123

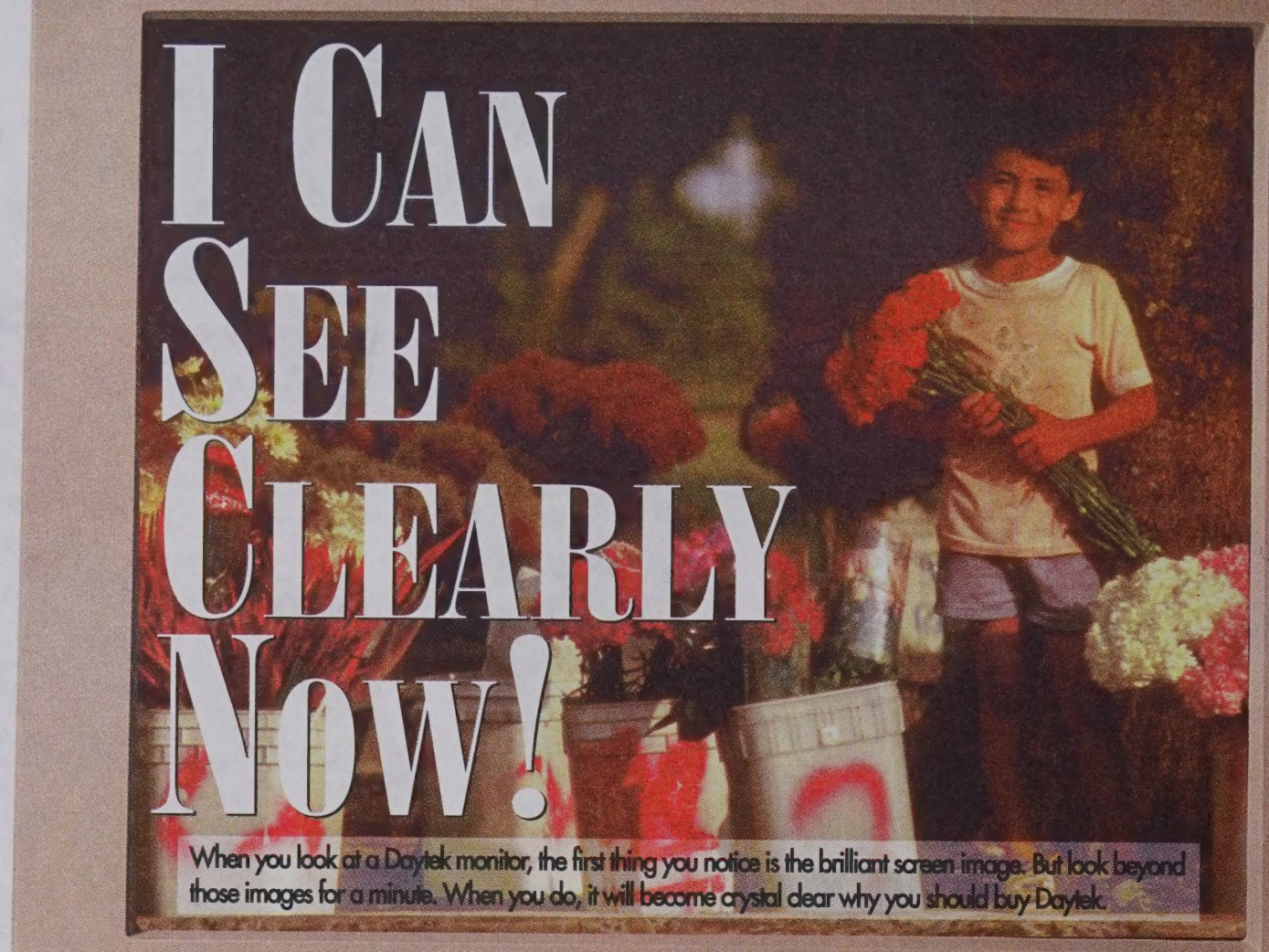
FREE

10

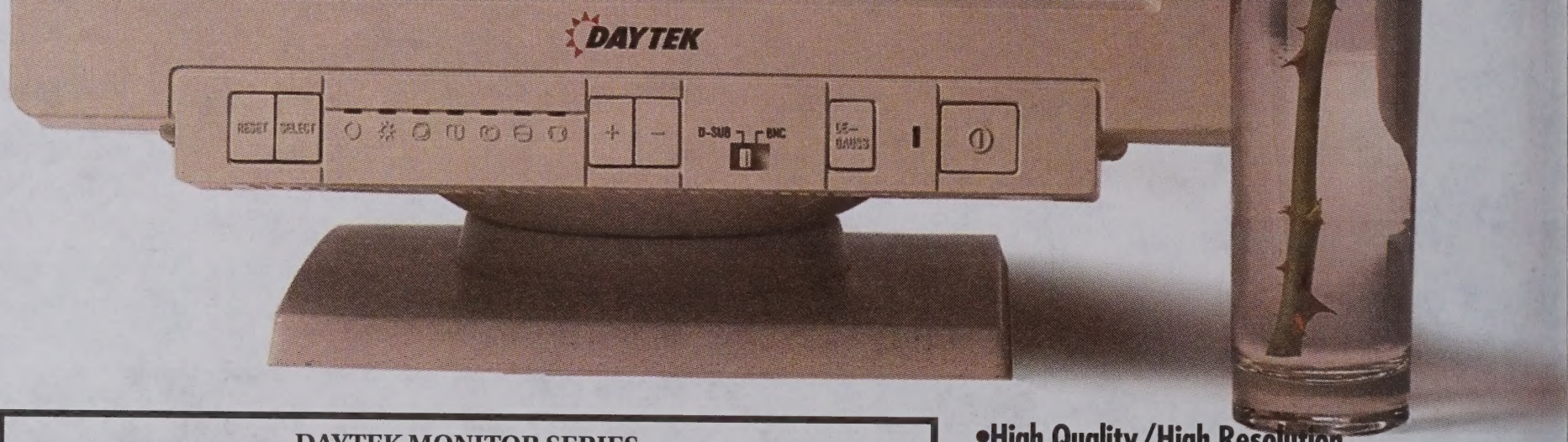
MICROTIMES TEN YEAR CELEBRATION

A Look Back At Ten Years Of Our Most Provocative Editorial

I Can See Clearly Now!



When you look at a Daytek monitor, the first thing you notice is the brilliant screen image. But look beyond those images for a minute. When you do, it will become crystal clear why you should buy Daytek.



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Non-Glare	Non-Glare	Non-Glare	Non-Glare	Non-Glare	Non-Glare
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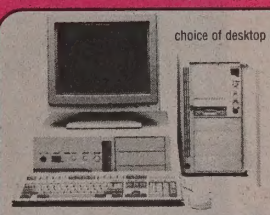

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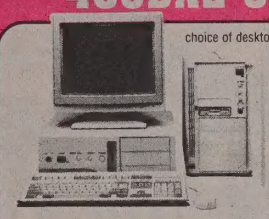

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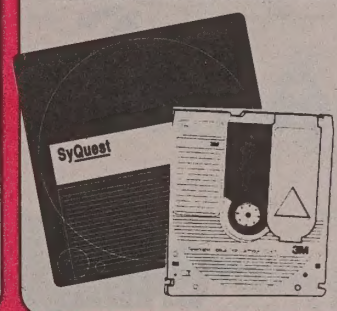

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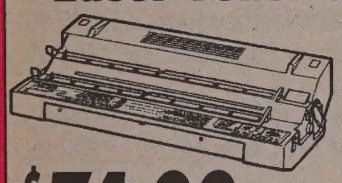

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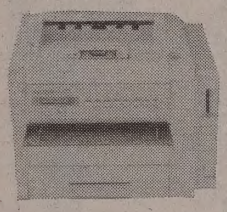

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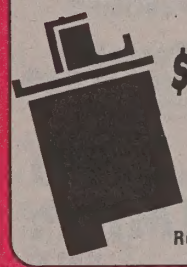

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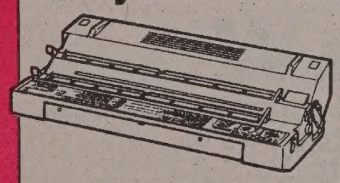

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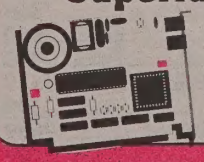

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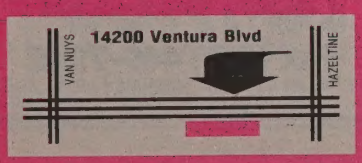

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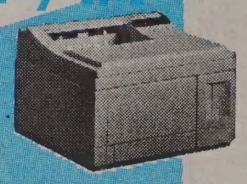

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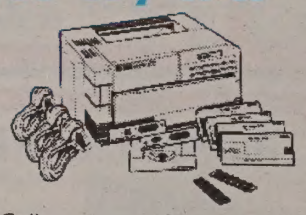

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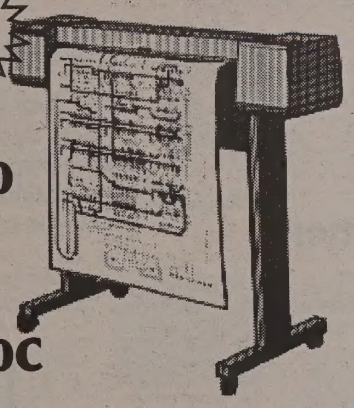

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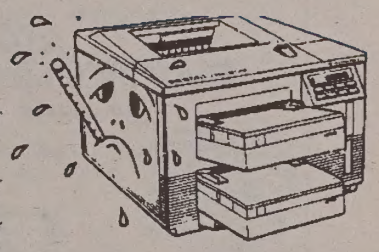

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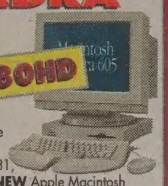

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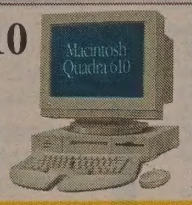

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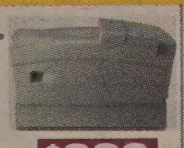

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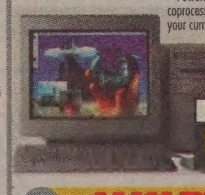

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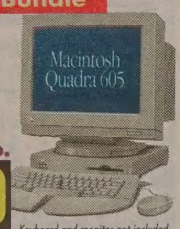

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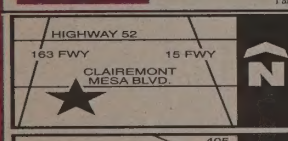

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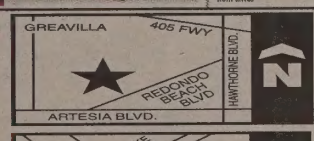

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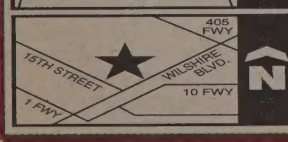

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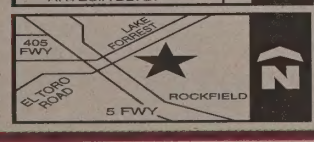

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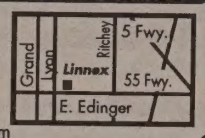

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Contributors
MICROTIMES

A Note From The Editors

Ten years after our improbable beginning as a spin-off of a rock 'n' roll publication, we invite you to join with us in celebrating this momentous anniversary.

Art Coordinator Monika Lukenbill and **Senior Designer Rick Colby** have been working even harder than usual to create a new "look and feel" for the magazine, and we hope you'll like it. Once again, our intrepid contributors have gone out into their various worlds and brought back what we hope you'll find unique and useful information, and their grateful editors would like to salute them for their years of diligent efforts.

We expect the computer industry and the people that create it to go right on changing at the same bewildering rate of the last decade or so, and we hope you'll stay with us as we continue to cover them. Thanks for your support over the last ten years.

—ME

Lenny Bailes teaches, writes, and consults about computer-related subjects and lives in San Francisco.

John Perry Barlow is a co-founder of the Electronic Frontier Foundation, a columnist for numerous publications, and a lyricist for the Grateful Dead.

Smoot Carl-Mitchell, Austin Texas-based writer and consultant, is the managing partner of TIC (Texas Internet Consulting) and President of MIDS (Matrix Information Directory Services).

Jennifer Robin Cherniss is a writer based in the East Bay.

John C. Dvorak is a prolific author and gets a lot of strange mail.

Jonathan E. has worked with desktop multimedia since 1988. He also writes about world music and the Archaic Revival for BAM. His USPS mailing address is c/o SoundSwell, 54 29th St., Richmond, CA 94804. His email address is jeve@well.sf.ca.us .

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Fred Haslam is an independent programmer based in the Bay Area. His most recent project was co-authoring SimCity 2000.

Paul Hoffman is an independent consultant who's been writing about computers for over fifteen years.

Ed Kahn is a writer and consultant based in Studio City.

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Woody Liswood is a PC consultant with special expertise in Human resources. He lives in Colorado.

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Douglas J. Nakakihara is a CPA by trade and an Amiga enthusiast by inclination.

John S. Quarterman, senior technical partner of TIC (Texas Internet Consulting) and editor of Matrix News, is a long time observer, consultant, and writer on the matrix of electronic networks.

Kevin Savetz is a computer journalist based in Northern California.

David A. Simon, CPA is in tax and accounting practice in Oakland.

Jim Warren organized and chaired the first conference on Computers, Freedom & Privacy in 1991. He founded InfoWorld, Wireless Digital Initiative, and one of the nation's largest public microcomputer conventions. He currently serves on Autodesk's board of directors. He can be reached at jwarren@well.sf.ca.us or at 345 Swett Road, Woodside, CA 94062.

John Wolcott is a free-lance writer based in Orange County.

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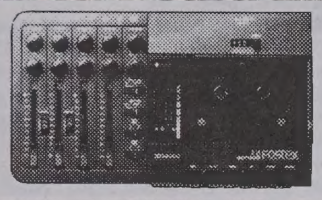

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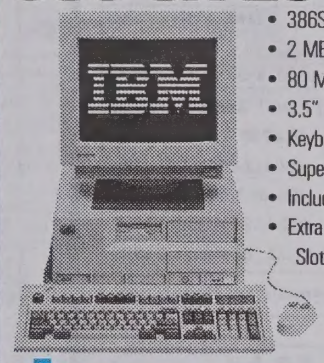

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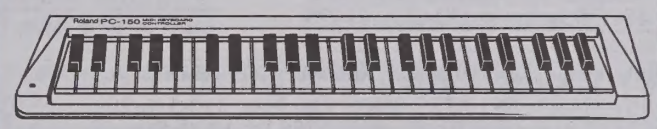

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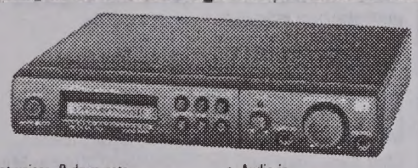

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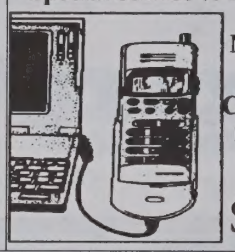

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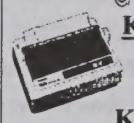

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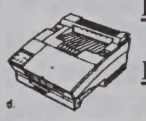

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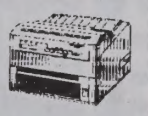

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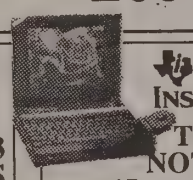

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BY PAUL HOFFMAN

Industry Insight

Chip Wars: Two-Prong Attack Against Intel

On The Right, IBM and Cyrix...

After AMD

gr bbed the Intel-clone limelight last month by winning a significant legal case, tiny Texas-based Cyrix may have scored an even bigger win by striking a deal with IBM to have the giant company manufacture its CPUs. By taking advantage of IBM's huge manufacturing capacity, Cyrix can assure PC makers enough chips when they want them. Further, IBM's chip-making processes are considered significantly more advanced than those of many other companies, giving Cyrix an additional boost.

IBM also does very well in the deal. Because of its current licenses for Intel's 486 technology, IBM is not hurting for the current generation of CPUs. For the next generation, IBM can use Cyrix's long-rumored M1 Intel-clone. Or, more likely, IBM will continue its current push for the PowerPC RISC CPU, probably adding a native 486 core to the chip to get it to run PC programs without modification.

The agreement will mostly help users of low-end systems and portables this year, since that's Cyrix's strongest market. With IBM's better manufacturing facilities, Cyrix can drive down its cost per chip through higher yields. Intel will likely have to drop its 486 prices in response, possibly lower than planned after its loss to AMD in court last month. The deal also lets IBM sell the CPUs into the same markets with IBM labels, but this is not expected to be a significant help to the behemoth.

The deal, which may be changed due to legal pressures in the coming months, will really change things about six months from now when the M1 begins shipping in quantity, probably from both Cyrix and IBM. If IBM puts the M1 in many of its more popular high-end machines, it will gain an incredible amount of good publicity, possibly edging AMD out of the high-end race. Even if the chip doesn't do that well, IBM will still be producing the PowerPC chip, which could be considered a competitor. Unless Intel drops the price of the current family of Pentium chips or gets the next generation out sooner than expected, there could be much more competition than anyone expected a year ago.

Unless Intel drops the price of the current family of Pentium chips or gets the next generation out sooner than expected, there could be much more competition than anyone expected a year ago.

IBM's manufacturing prowess will probably get much more publicity in about a year when it modifies the M1 to take advantage of some of its technology. Chip-making processes are somewhat arcane, and IBM is well known for having methods for making chips smaller and more adaptable to many types of motherboards. IBM could take the M1 and tweak it in ways that fit its processing technology well and produce faster, lower-power, and cheaper chips. Intel, no slouch when it comes to manufacturing, may have to speed up its building of new chip plants to keep up with the new CPUs.

...On The Left, IBM and Motorola

Keeping the heat on Intel's Pentium PC, IBM and Motorola have announced their new PowerPC 604 CPU that will ship by the end of this year. The 604 is faster than the current Pentium chips, and is likely to be faster than the Pentiums that will probably become available early next year. Do not be confused by its lackluster name: the difference between the current PowerPC 603 and soon-to-be-released 601 and the future 604 is as large as the difference between Intel's 486 and Pentium CPUs. Just to rub Intel's nose in the dirt a bit more, the companies also announced that they will ship a faster version of the 601 by the end of the year.

The 604 will run all the programs designed for the 601, but will run them much faster. Companies who recompile their code for the 604 will gain an even more significant speed increase. Based on the integer-math speed ratings used by most companies, the SPECint92, the PowerPC 604 will run faster than any expected Pentium, and may only be surpassed by Intel's next generation, the P6, which is not due until late next year. The floating-point math speed is also significantly better. Surprisingly, the cost of the 604 is not expected to be significantly more than the high-end Pentiums, even at twice the speed.

IBM and Motorola's announcement will put a great deal of pressure on Intel in the short run. Work on Windows NT for the PowerPC is moving along quickly and will certainly be done by the time IBM and other vendors start shipping 604-based systems at the end of this year. Although Apple is not expected to ship high-end 604-based systems until early 1995, when it does, they will blow away most shipping Pentium systems used as network servers and as personal workstations. Even if Intel delivers its expected 100 MHz Pentium chips in desktop systems, the PowerPC 604 systems will run 60% faster for integer operations and 100% faster for floating-point operations.

Internally, the 604 uses many new features that have not been exploited in earlier PowerPC CPUs. These features include better anticipation of decisions, better response for when it predicts correctly, and better internal caching of instructions. Some of these features appear in the Pentium, and will certainly appear in the P6, but IBM and Motorola have been able to include the right combination of prediction and cache usage to get the speed of the chip well above the Pentium, and pos-

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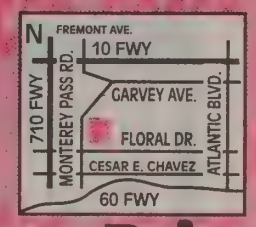

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As more disabled people enter the mainstream, due in part to the recent implementation of the Americans with Disabilities Act, computer dealers will probably have a greater sensitivity to the disabled market.

sibly even above the P6. Although the expected manufacturing cost of the 604 is more than twice that of the 601, it is probably the same or a bit less than Intel's will be for the P6.

No one expects the 604 to cause mass abandonment of the Intel family. However, when it arrives six months from now, it will certainly put a dent in the Pentium market, particularly for graphics, server, and multimedia workstations. It will help strengthen Apple's current PowerPC line, which is selling quite well, and will give Motorola a strong image boost. Most importantly, it will help IBM hedge its bets on the future since IBM will probably be starting to manufacture Cyrix's high-end M1 CPU at the same time. Unless Intel drops prices or speeds its development, both difficult tasks, it should look for less growth in the coming years.

Two Types Of Compression For DOS 6 Users

As an outgrowth of Stac's successful lawsuit against Microsoft, PC users will have two different compression programs built into their DOS version 6 programs in the near future.

Before the suit, Microsoft was using DoubleSpace, based on Stac's algorithm, in its MS-DOS operating system, while IBM had licensed SuperStor for its PC-DOS. Now, Microsoft will start to use a new, as-yet-unnamed algorithm in its upcoming DOS 6.3, while IBM will start to use Stac's algorithm in their future versions.

Although there has not been a huge outcry against the compression-less MS-DOS 6.21, many people have been pirating MS-DOS 6.2 so that they can use DoubleSpace. Microsoft, having played up DoubleSpace as a major feature, needs to find a good replacement for it. MS-DOS version 6.3 is starting its beta test and will probably be ready in June or July. Microsoft is expected to give the upgrade free or for very low cost to users who bought version 6.21; it is not clear how manufacturers who include MS-DOS on their systems will handle upgrades.

IBM, on the other hand, has agreed to use Stac software in releases after PC-DOS 6.3, which has just been released. Version 6.3 has some small improvements in memory use and speed, and it is unfortunate that IBM could not work the new drivers into it. Instead, IBM will probably test the technology for a while and release it in future versions of PC-DOS and of OS/2.

Apple Takes High Road In Disability Sales

Recognizing a huge market for its computers and software, Apple has announced its "Aisle 17" service, a mail-order store specializing in the needs of disabled people. Aisle 17 will sell computers, peripherals, and software specifically targeted at disabilities. Apple expects the primary audience to be disabled people, although they will support people who work with the disabled as well.

One of the biggest problems for disabled people using adaptive hardware devices or software with their computers has been support. Users could not get straight answers when there was a failure between the systems. Because adaptive devices often take over a major part of the computer, computer makers would not take responsibility for problems that were caused by the devices. With Aisle 17, Apple will support both the computers and the add-ons from a single location.

Apple chose the name "Aisle 17" to indicate that the service shouldn't be anything special: just another aisle in the store. As more disabled people enter the mainstream, due in part to the recent implementation of the Americans with Disabilities Act, computer dealers will probably have a greater sensitivity to the disabled market. By being the most visible such dealer, Apple hopes to establish itself (and, of course, its computers), as leaders in the growing market. The service can be reached at (800) 600-7808 for voice, or (800) 755-0601 for those using TDD devices. ■

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Continued on page 98

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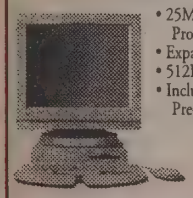

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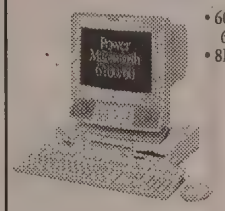

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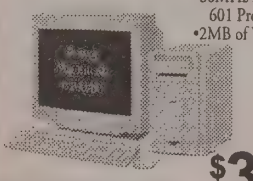

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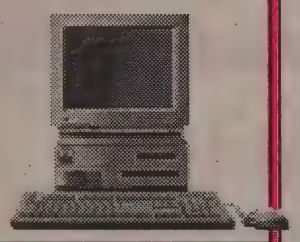

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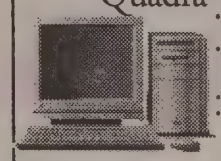

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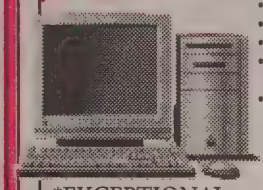

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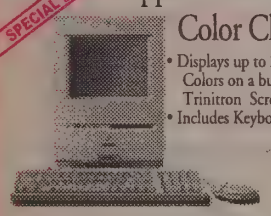

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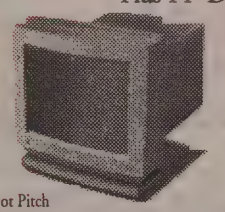

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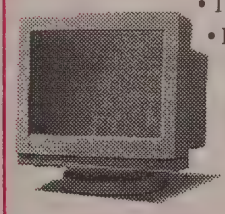

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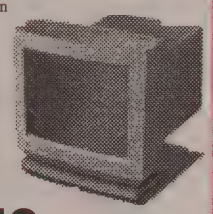

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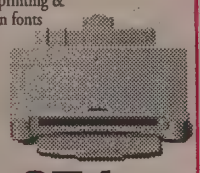

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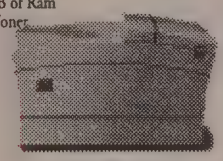

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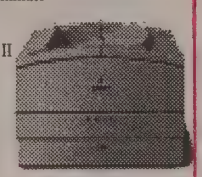

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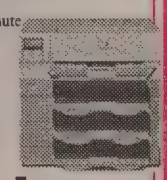

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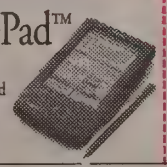

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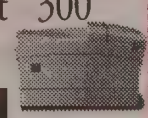

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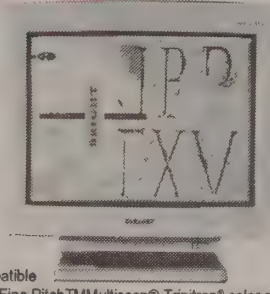

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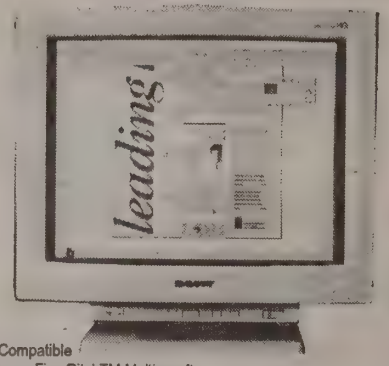

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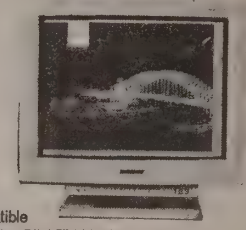

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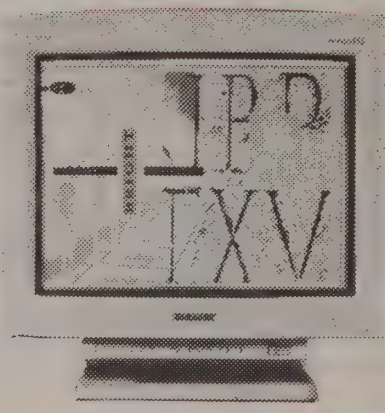

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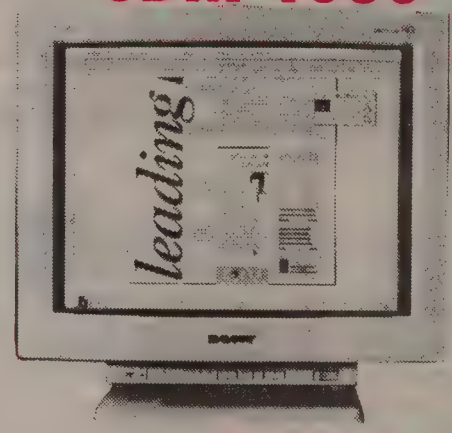

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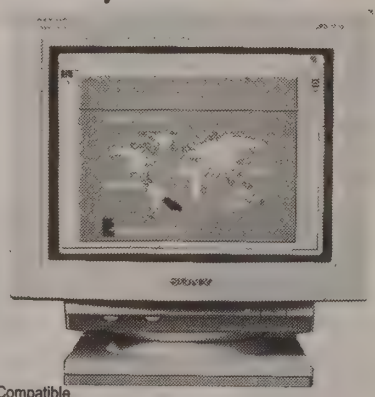

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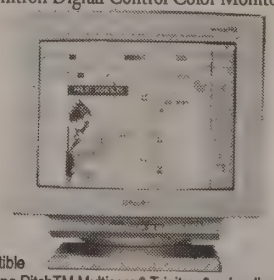

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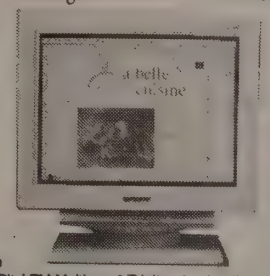

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- Variable scan frequency of 28 to 59 kHz
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- Sony Display Memory System provides easy-to-use digital control of screen images
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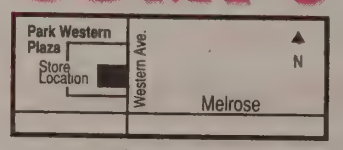

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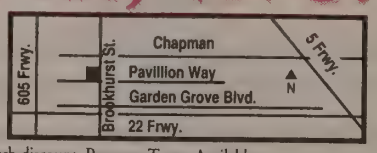

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REALIZABLE FANTASIES • BY JIM WARREN

Ask *Now*, for Online Political Disclosures

Notes on Taxing Knowledge

Computerized

California fantasies are sometimes digitally delicious; other times, downright stupid!

May Be Your Last Chance

Last year, a flood of faxes and letters encouraged the California Legislature to lead the nation in making legislative information available via the public computer nets, without state fees. The public support helped legislators override opposition from some of the most powerful people in the state.

This year, laudable legislators who want to make computerized campaign-finance disclosures available—already mandated in San Francisco and in federal races, and moving forward in New Mexico—again need our help.

Or—California can wait a year or two and become merely a simpering, limp-along follower of some more modern state. The question isn't *whether* California will provide online access to details about who's paying for our elected officials; the only question is *when*.

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SB758 Is In Trouble

California Senate Bill 758 would authorize and mandate that candidates and campaigns file their already-required campaign-finance public disclosures in computerized form if they receive or spend more than $10,000 in a calendar year, and that the information be made freely available via the nonprofit, nonproprietary public networks. Its author is Senator Tom Hayden (D-Los Angeles; Aide Darryl Young, 916-445-1353, darryl.young@sen.ca.gov).

At press deadline, a key political player who has long worked for some of the state's most powerful politicians is recommending against SB 758. He has some legitimate concerns about excessive burdens on candidates and campaigns—but there are economical, technological solutions to his concerns that can easily be amended into the bill. (With luck, the opponent will find the solutions acceptable. If not, this column and online updates will report all the lurid details—especially emphasizing the political connections.)

Widespread public support can help make this much-needed political reform irresistible–IF it arrives in time.

Brief letters and faxes are needed, *now!* –supporting SB 758 and the prompt implementation of modern computer-aided access to political disclosures. The crucial next vote will soon occur in the Assembly Committee on Elections, Reapportionment and Constitutional Amendments. Fax or write at least to bill author Hayden (fax/916-324-4823); and also to the committee members. If you are near a member's district, zip off a brief letter to the editors of the local newspapers; they'd also like easier access to these hard-to-access disclosures.

The Committee members are:

- Diane Martinez (D), Chair, fax/916-324-1393, for Monterey Park, Alhambra, etc., around ZIP-code 918xx;
- Ross Johnson (R), voice/916-445-7448, for Fullerton, Placentia, etc., around ZIP-code 926xx;
- Tom Bates (D), fax/916-445-6434, for Oakland, Berkeley, Richmond, etc., around ZIP 946xx-948xx;
- Richard Mountjoy (R), fax/818-445-3591 [his District office], for Monrovia, Arcadia, Pomona, etc., around 910xx;
- Johan Klehs (D), fax/916-445-0967, for San Leandro, Hayward, Castro Valley, etc., 945xx; and,
- Cruz Bustamante (D), voice/916-445-8514 [newly-elected], for the Fresno area.

Sales Tax Bizzaro-Rama

The California Board of Equalization–threading several elephants through the eye of the state's wallet-sucking tax-needle –has decided that the method by which information is transferred determines whether the information provider is free of the state's sales-tax gouge, or will be taxed to the hilt, even if the information is transferred exclusively to resellers of the information.

If you create or compile information or listings (most sane people would call that "authoring") and transfer it by modem to one or several buyers—even thousands of eager end-users, each paying for your data-by-modem—then it's free of California's sales tax. At least according to a patient, seemingly-knowledgeable Board of Equalization Supervising Tax Auditor during an extended, detailed discussion of the matter.

But, if you dast to transfer identically the same information via a diskette or magtape to an online system for a fee, then you must pay and pay and pay sales tax on all that you are paid. (Then you get to pay income tax on whatever's left.) Even if you only transfer it to resellers of the information who have no personal use for it except for resale to the information's actual users.

Disk-delivering authors must pay sales tax; online distributors don't.

The lunatic issue appears to be whether you sold "tangible personal property"—i.e., a 50-cent diskette or coupla-dollar magtape. But the sales tax ain't on the cost of the diskette or magtape; it's computed on the total compensation you receive for the information that you sell, but only

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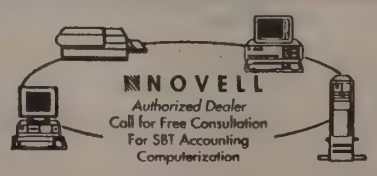

The Board of Equalization exempts **print-published** authors from having **to pay sales tax** on the **compensation** (royalties) they receive **from their publishers.**

when delivered on "tangible personal property."

They think diskettes of data are like books, and are ignoring the reseller/end-user issues.

Yeah, the Board of Equalization has a set of regulations concerning books and publishers, and exempts print-published authors from having to pay sales tax on the compensation (royalties) they receive from their publishers. But with backwards-looking myopia, they refuse to apply the same rules to authors of online information who foolishly deliver one copy of it on a diskette.

And rather than challenge some major information author, they have decided to go after a tiny two-person list compiler who naively sent their compilations to Dialog and other resellers on magnetic media rather than by modem. (And then state politicians wonder why job-producing, income-tax-paying high-tech businesses are fleeing California!)

Sure am glad I submit these columns online, and that they're published on pre-landfill ex-forests.

At least there's a bright side: Online distributors don't have to collect a tax-per-byte ransom on the electronic speech and press that their users exchange.

Quickies

• Software publishers: Avoid dark-colored diskettes. Give unto us, light disks upon which we may scribe our notes—visibly (of course, gently using a felt-pen).

• Price-fixing algorithm: Menlo Park's John Nagle suggests indexing the minimum wage—and other entitlements—to national productivity, rather than to the CPI (Consumer Price Index).

The Horse's Mouth

The writer also speaks—at the June 17th Peninsula CivicNet '94 Symposium (for details, call Ruth Nagler, 415-345-1221). ■

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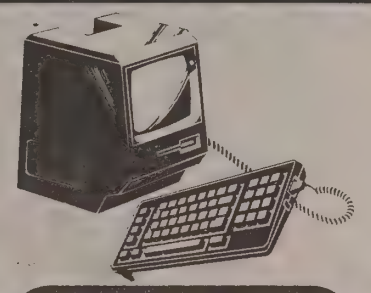

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LAPTOPS • BY ED KAHN

What To Look For In A Laptop PC

Considerations For DOS And Windows Users

This month I've had four calls from friends asking which laptop is the best. My answer is always the same, so I thought I should publish my advice and then just hand it out whenever the question comes around again.

In fact, all of the machines are good. The technology has advanced to the point that virtually any laptop or portable you choose will do the job. Only you can decide which configuration suits your needs best, but there are a number of criteria that will apply to any configuration you choose.

Basics

First, you'll need to decide whether you want a laptop, notebook, or sub-notebook machine. The larger the unit, the larger the display and keyboard. The smaller the computer, the more portable it will be.

The next consideration is whether you want color or monochrome. Color costs a little more, but the display is easier to work with. These days, there are two basic color technologies available. The best, and most expensive, is active matrix color, definitely the top of the line. In the past, the alternative was passive matrix, which was decidedly inferior. When those were the only choices, I would have chosen either active-matrix color or a monochrome screen.

Now, however, there's a third alternative: dual scan passive matrix. For most purposes, I rate this nearly as high as active matrix, and it is a lot less expensive. This is probably the right choice, if you've decided that you want a color display. In some cases, dual scan is only a couple of hundred dollars more expensive than monochrome.

But before you make a final decision in the color vs. monochrome dilemma, bear in mind that color systems will not run as long on batteries as monochrome units. If the length of time a charge lasts is a major consideration, stick with monochrome or be prepared to carry extra battery packs along.

There's also another side to the question. If you use your portable primarily at a fixed location where you can attach a color monitor, there may be little reason to spend the extra money for a color LCD, as you will use it only infrequently. So coupled with the longer battery life, this fact may make monochrome the most attractive option. You must weigh these alternatives.

The next decision you have to make is how much memory you'll want. These days, four megabytes of RAM are nearly standard, as Windows simply doesn't do well with less RAM. You may want more memory, which all of the decent portables are designed to allow. If you don't work in Windows, four megabytes is more than you need, but the extra memory won't hurt anything and you'll be set up to make the transition to Windows if you decide to do so later.

You will also have to decide what speed processor you want. I recommend nothing slower than 25MHz, and really would prefer to operate at 33MHz or faster. Again, if you're operating in standard DOS, a slower speed is perfectly acceptable, but if you will be using Windows at the outset or soon, you will be disappointed in the performance if you get a slow machine.

Hard drive size is the final choice you will have to make. If you run scads of applications, you will want a larger hard drive. On the other hand, if you run only one or two applications in Windows, a hard drive with a capacity of, say, 100MB should be adequate. If you will not be using Windows, a smaller hard drive is certainly adequate. With DOS 6.2 or later, you can double the capacity of the hard drive should you find you need more space. My recommendation is that you buy a hard drive that has enough room to suit your needs and not use the disk doubling feature of DOS until you find you can't do without it.

More Issues

With the basics out of the way, here are some pointers that you should follow, no matter what configuration you have chosen. Following these guidelines will help make your portable what you dreamed it could be and not the nightmare that some of them turn out to be.

Two features are indispensable. First, no matter how good the built-in keyboard is—and you should make sure you like the layout and feel of the computer you're considering—you should have the option of installing a standard full-size PS/2 compatible keyboard. This means that you can use a keyboard of your choice with your computer when you're not on the go. Keyboards are not expensive, and it is a shame to be tied to an inferior built-in keyboard in order to accommodate portability when you are in your office or at home.

Keyboards are so personal that there is no universal answer to what is the best layout or feel. Only you will know what works best for you. The best keyboard layouts on portables have separate keys for cursor movement. Some of the poorly designed layouts require you to press a function key in addition to another key in order to access home, end, page up, and page down. This is too awkward for serious word processing.

My second requirement concerns displays. Make sure that you can attach a VGA

continued on page 100

perhaps the most important, feature to check out is the after-warranty service policy.

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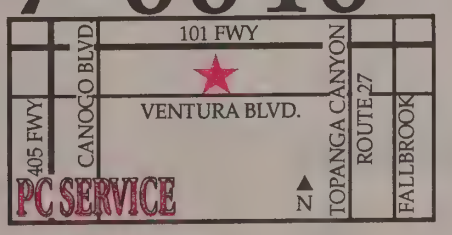

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BY ROBERT MOSKOWITZ

What A Telecommuting World Will Look Like

A Look At The Social And Business Environment Needed To Support Telecommuting

This month, I'm bringing you an exploration of how work, play, home, and business institutions can, might, and perhaps even should change in order to facilitate and support the telecommuting style of work.

Here's a discussion, part of a larger work, jointly developed by myself and Franz Nahrada, research director, GIVE (Globally Integrated Village Environment) Project, Vienna, Austria, during his recent visit to this country.

The Telecommuter's Neighborhood

Today there is a great deal of concern about the technical infrastructure of the information age, but much less attention is paid to the physical infrastructure, like housing and space use. Nor is enough being said about the environmental concerns, in the sense of surrounding a telework center with an environment of necessary services. This is unfortunate, because a successful transformation from our present industrial-based society to a 21st century information-based society requires all three.

Could it be that some of the shortcomings of telecommuting—particularly the relative reluctance of many people and organizations to try it or support it—are related to feelings of discomfort prompted by the difficulties of trying to telecommute from places that were shaped for another work style? And vice versa: Isn't it possible that telecommuting, which is still high up on the wish-list of so many people, could receive a big boost if the right kind of workplaces were designed and made available for it?

A successful implementation of telecommuting requires the careful blending of three main elements: the business organization that makes use of it, the environment that supports it, and the person who does it.

In this article, we will focus on the second element: the social and business environment needed to support a society of telecommuters.

The way work and society are organized today, people who make the traditional commute from their home to their place of employment are feeling under much more pressure than ever before, and a growing proportion of public effort is being spent on reorganizing work patterns to make it possible for people to work in their own neighborhoods. But where are the facilities to support such a local telework culture?

It seems that today's models for suburban development have a life of their own, replicating themselves, ad infinitum, without leaving room for any of the variations or subtle changes that would help to support and nurture a more telecommuting-oriented style of work.

Once we understand the differences between today's industrial patterns and what might work better for us tomorrow, perhaps we can create sufficient incentives to make planners and developers consider meeting some of these needs in place of what is too often the standard suburban dullness. We will also need incentives for lawmakers and public administrators to redefine space-use policies that presently strive to separate residential areas from traditional business zones.

In this game, no player makes a move unless the others move first. If the home owners are happy with the way things are, there is no reason for developers to build anything different or for city planners and administrators to change zoning laws. Obviously, homeowners today aren't happy with the need to commute so far to work, but at present there is no attractive alternative—and there won't be until and unless they begin to demand that one be provided.

Let us now begin to imagine a place suitable for telecommuters to live and work. What would be the qualities and characteristics of such a location? In all likelihood, it would be somewhat different from the neighborhoods we live in today.

Twenty years of telecommuting experience and countless studies have yielded a number of basic rules and guidelines for a telecommuting-friendly environment, such as:

Telecommuting Needs A Dedicated Workplace

As the center of society, the home is perfectly fine. It may even function well as a telecommuting workplace—but only to the extent it allows you to concentrate on your work and maintain the necessary distance from kids, TVs, pets, and other disturbances.

For people who have a problem working at home, an alternative solution could be some form of neighborhood offices: places in the same locale as your home but more suitable for undisturbed work, and easily reached by foot or by bicycle. These workplaces might well be time-shared with others living in the same neighborhood.

A Satisfactory Workplace Needs Supporting Services

A telecommuter needs more than just a quiet cubicle, a computer, and a fax. He or she needs printing and copying, a helping hand for mailing and urgent delivery, perhaps even some of the more professional and skilled functions of a secretary, or of a computer expert to help in various situations. Copy and support

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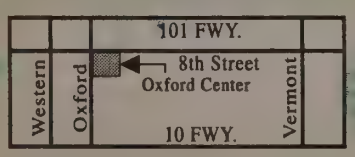

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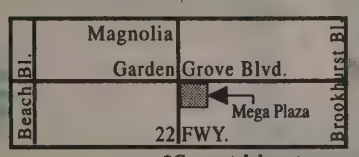

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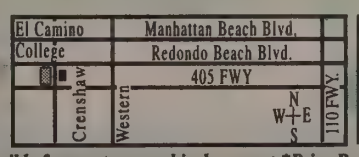

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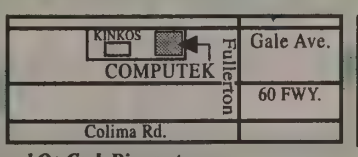

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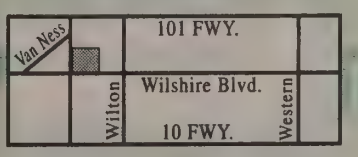

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centers (like Kinko's and Alphagraphics) in modified form could move in and help meet this important need. Running such a neighborhood office in a residential area could provide a lucrative business opportunity.

Helping make a world where people can reduce traffic by staying close to home requires even more services, such as child care centers that allow parents to easily meet their kids during work-breaks.

A Workplace Needs Environmental Variety

A big advantage of working in the central business districts is that such locations allow you to make the best use of your time when you're not working. They are filled with a delightful array of delis and cafes that cater food fast, reliably and in variety, not incidentally providing agreeable places for people to meet and chat. There are also copy stores, dry cleaners, movie-rental stores, massage parlors, health clubs, and all the other facilities and services that people are likely to need, want, and use during the business day.

Neighborhood telework offices should have comparable facilities and services: a neighborhood cafe nearby—or better yet, a mini-plaza or mall—where people can meet and chat, surrounded by a small selection of stores and facilities offering the same variety of services and products they would normally find downtown.

Retail outlets tied into electronic networking could make "teleshopping" and delivery of goods and services near neighborhood telework centers more fun than they are today. Effective use of "telematics" would allow for an array of services that have not been available so far to the neighborhood telecommuting workplaces. This would include, for example, telemedicine (where specialist doctors could examine a person and prescribe treatment from miles away) and virtual reality shopping centers (in which you could "browse" through a catalog electronically, getting help from trained staff and making purchases of merchandise that is not physically present).

While a normal K-Mart and shopping mall eats up dozens of acres of land, by comparison a "telematic" shopping center requires a very small footprint. A full-service one could comfortably fit into a residential area, and many residents might find jobs providing services there.

Although the sky is the limit, it would take only a small change in the ways we now provide for telecommuting, and the ways we now support telecommuters, to create a major difference in the degree of comfort available to these pioneers of 21st century work patterns. GIVE is organizing a conference and exhibition along these lines for Vienna, Austria, scheduled for February 1995, and is soliciting ideas and asking developers to show their models of what a city or village for the telecommuting age might look like. We are eager to see developments of this kind take root and grow, and will keep you posted on any progress in these directions, as we learn of them.

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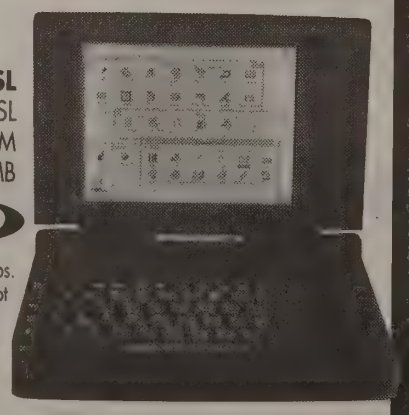

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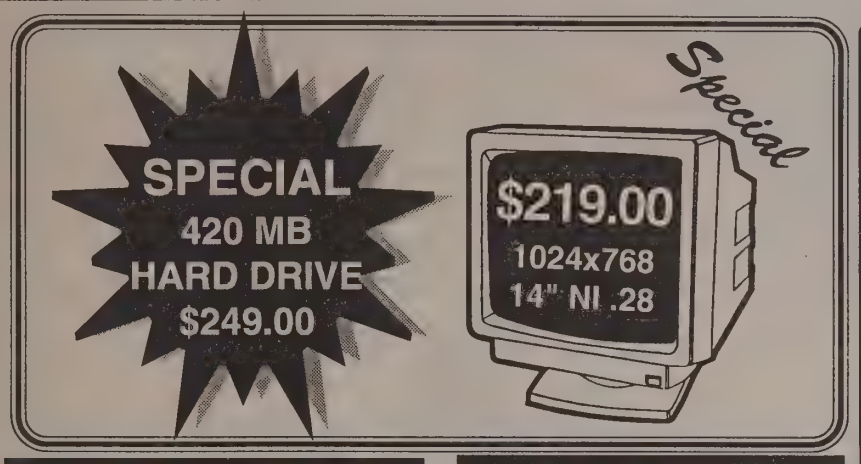

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grow vague and the highly specific meanings of various terms get lost.

In an effort to bring some rigor to this otherwise amorphous discussion, Charles Grantham, of the Institute for the Study of Distributed Work, in Oakland, CA, is offering a structure and a method for describing more precisely the exact nature and characteristics of particular telecommuting work sites.

The idea is to employ two different scales on which to score a center: from 0–42 on a scale of communications bandwidth and connectivity, and from 0–36 on a scale of availability and quality of supportive services.

The result is to place every telework center into one of four possible quadrants. Let's take a look at each one:

• Centers with low connectivity and low service are called Remote Work Sites. These can be anything from a table in your dining room to a simple cubicle in your local library or shared office suite. If all you need is a desk, paper, and pencil, a Remote Work Site is adequate to your telecommuting needs.

• Centers with low connectivity and high service are called Community Work Centers. These sites typically provide a wide range of supportive services, such as educational opportunities,

Helping make a **world** where people can **reduce traffic** by staying close to **home** requires even more services, such as **child care centers** that allow **parents** to easily **meet** their **kids** during work-breaks.

child care for telecommuters, and access to government services. Telecommuting centers sited at community colleges (see Charles County Telework Centers, below) might be expected to fit this mold quite well.

• Centers with high connectivity and low service are called Communications Centers. This is a facility like a library, where people can find better access to information and communications capabilities than they are likely to have at home, or at any Remote Work Site. But also like a library, these sites are unlikely to offer a broad range of needed supportive services.

• Centers with high connectivity and high service are the ideal, of course. They present wonderful opportunities to accomplish productive work, whether it requires secretarial and other support services or access to vast quantities of information, or both! Today, the best example of this type of center might be the Executive Suite model, in which high-quality offices and support staff/services are available for rent as needed on a day-by-day, month-by-month, or annual basis. According to Grantham, this is the direction that holds the most promise for telework center development.

The main problem, according to many of the people who are visualizing the future of telecommuting, is that the forms of telecommuting services and centers now available generally focus

continued on page 51

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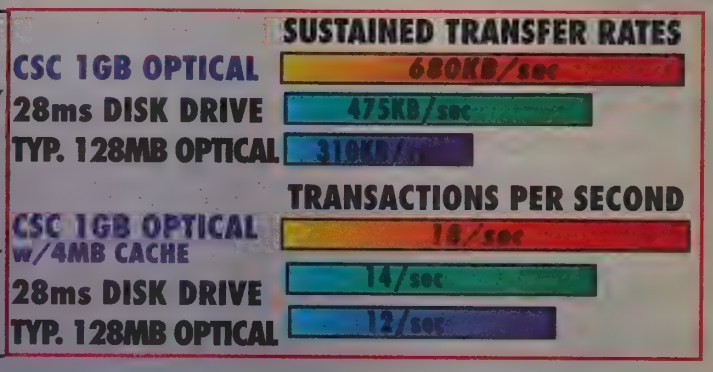

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BY JOHN S. QUARTERMAN and SMOOT CARL-MITCHELL

Electronic Mail On The Internet

A List Of The Top Ten Ways Not To Use Electronic Mail

Introducing this column about useful and interesting things to do with the Internet and with your Internet connection, let's begin with a discussion of the most widely used of all Internet services: electronic mail.

Within the Matrix of all computer networks that exchange electronic mail, there are several different mail styles, centered on networks like FidoNet, conferencing systems like the WELL and CompuServe, and on the Internet. With the Internet increasing so rapidly in size and importance, it has become the meeting place for all these different styles and the people who use them. In this environment conflicts happen, mostly due to mutual miscomprehension. Even more confusion results from people just joining the Internet who don't know the conventions and don't realize there's anything to learn.

We won't bore you with mechanics of reading a mail message, replying to it, or composing a new one. You already know how to do that using your local mail system. What we're interested in here is how best to use those basics. Etiquette, if you will. If there is a common set of conventions, it's probably those used on the Internet. Except, of course, there's no single set in use on the Internet, either. But we can list some things that will annoy almost everybody on the Internet who sees them.

Here's our list of the top ten ways *not* to respond to a mail message on the Internet.

If you are composing mail on a Macintosh, tell your mail program to put in hard line breaks and to translate quotation marks into plain ASCII before you send the message.

10) No reply at all

Some people get the idea that electronic mail is exactly like paper mail, and let an incoming message sit around for days or weeks before replying to it, if at all. But online you don't need an envelope, a stamp, or even paper, and it's really not very difficult to send at least a note saying you got the message and will deal with it when you have time.

Some people think electronic mail is exactly like paper memos, and if they are on the Cc: list instead of the To: line, they think they are not supposed to reply. But online is different. If you have something to say, generally you should, regardless of which way your copy of the original message was addressed.

9) "I agree!"

Your mail arrives in the other person's mailbox interspersed with everybody else's mail. It's not uncommon for your correspondent to get a hundred messages a day, perhaps including other messages from you, on different topics. Or maybe the correspondent hasn't heard anything from you for days. A message comes in from you, saying nothing but "I agree!" With what? Maybe the Subject: header will be enough of a clue, but you could also include more context in the body of the message.

8) A long message quoted whole, followed by "I agree!"

Few things are more boring than reading through a long message again from end to end, looking for some response of consequence, only to find nothing but "I agree!" tacked onto the end. Lots of people stop reading after the first page of quoted text on their screen. If you want your message to be read, quote just enough of the preceding message to clarify the context, or say in your own words what you agree with.

Only slightly less annoying is "I agree!" followed by the entire preceding message quoted. The busy reader will still likely not read past the first page, assuming there's nothing there. The careful reader will read the whole thing, only to find nothing new.

Also, please don't indent the new text you add to a mail message. Some people include the text of a previous message and then intersperse their own comments, indented by a tab character per line. Most people will read this as being written by someone who either doesn't have a mail interface capable of doing better, or who doesn't know better. The almost universal convention of electronic mail is to indent quoted text, either by a tab character, or, more commonly, with a single character, usually ">," perhaps followed by a space.

Some people go farther and precede each quoted line with the initials or mailbox name of the person being quoted. This is often more than is necessary, but does no harm. A simpler convention is to make the first line of quoted text include the From: line of the original message.

The near newbie may have learned to intersperse comments, but not to put a blank line before and after, and not to trim the quoted text. So the reader gets to wade through a page or more of quoted text, only to stumble over a single line of new material wedged in the middle somewhere. This experience does not encourage taking the writer seriously.

The inverse is the multipage message on a new topic from somebody you've never corresponded with, which makes all sorts of assumptions about things the writer knows but you don't.

Include context. But only enough context.

7) Very long lines full of UMac quotesR

If you are composing mail on a Macintosh, tell your mail program to put in hard line breaks and to translate quotation marks into plain ASCII before you send the message. Some mail systems still truncate lines

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IRC: CB radio comes of age with "Internet Relay Chat", a live interactive discussion environment with hundreds of "channels" categorized by topic.

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at 256 characters, or even at 80 characters. If you want your lines to be legible, don't make whole paragraphs single lines. People who like wide windows under the X Window System often make the same mistake. They can read lines 150 characters long, so why can't everybody else? Well, some can't, and most don't care to.

Some people, when told not to send long lines, instead send lines all 20 characters long. This just wastes space with no improvement in readability. Stick with about 70-character lines and most readers will be happy.

6) Pleze loose yer kutesy spelins. :-):-):-)

Some people insist on trying to make their message folksy and personable by using spellings like "yer" for "your," or by quoting a message preceded by a cutesy message like "from the cyberdesk of" or "you allegedly said." Such mind cruft may be amusing in personal messages, but it only annoys the reader who is trying to get something done.

Some misspellings are so common in the Matrix that no doubt Webster will adopt them soon. The most prominent of these is "loose" (pronounced loos, and meaning not tight) for "lose" (pronounced looz, and meaning to discard or cease to control). You may say you never knew how to spell and can't be expected to. The reader, given a choice of responding to a message that looks literate and one that doesn't, may not be expected to make allowances for you.

Smiley faces do have their places. :-) Mail is lacking in facial expressions and voice inflections. But you can use that lack to concentrate on the sense, rather than spending a lot of time compensating for something that isn't there.

Lengthy salutations and closings, as in paper business letters, are also usually superfluous in electronic mail. If you're sending and receiving a hundred messages a day, you don't want to have to write or read excess verbiage.

If you're sending business mail, make it businesslike. Say what you mean and mean what you say. Run it through a spell checker. Leave the personal chatter for a separate personal message.

5) MESSAGES ENTIRELY IN ALL CAPS

If you want to appear to be a newbie, a moron, or just extremely angry, do leave your cap lock key on for the entire message. If instead you prefer to have people read your mail, use mixed case.

Slightly less annoying are messages entirely in lower case, with no capitals at all. A correspondent who can't be bothered to use the shift key is less likely to get responses than one who takes the trouble to write a more legible message.

4) No paragraph breaks

Some conferencing systems evidently like to conserve screen space as much as possible, and people used to using them write messages with paragraph breaks indicated by a few dots in the middle of a line, like this ... This is hard to read for someone used to the Internet convention of marking paragraph breaks with a blank line.

Some people just don't bother to separate their thoughts into paragraphs, and instead ramble on for pages in one big mass of text.

Either convention is difficult to deal with if you want to respond to individual points by following each quoted point with your response, or if you just want to trim down the quoted text to retain only what you are responding to.

3) To: BUSINESS MEMO Date:

Some PC mail systems insert headers at the beginning of the body of

continued on page 166

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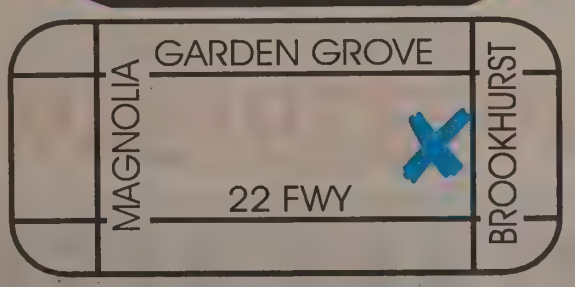

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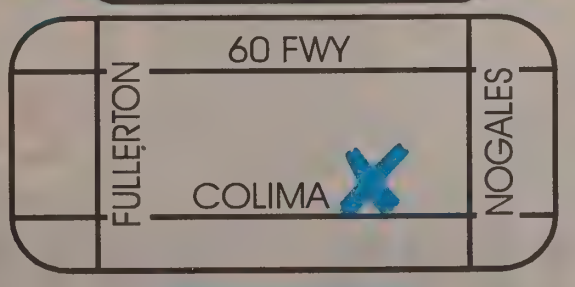

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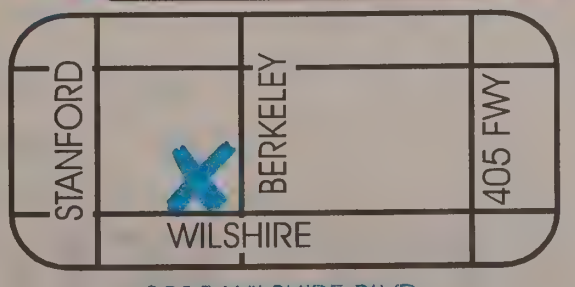

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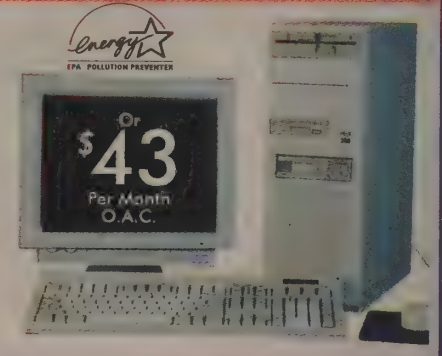

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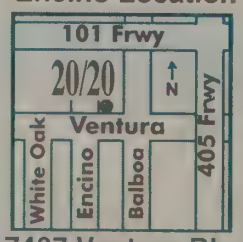

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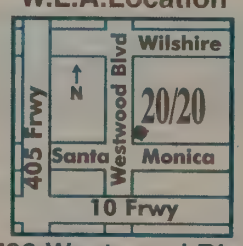

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BY DAVID A. SIMON, CPA AND JENNIFER R. CHERNISS

A Hidden Tax on Technical Workers

Pending Legislation Seeks To Resolve Multiple Payment Of State Unemployment Insurance Tax

California imposes a hidden unemployment insurance tax on workers who go from job to job, effectively taxing not the amount of wages, but the number of bosses served. Programmers, technical consultants, tech writers, and software developers are convenient fuel to this revenue siphon because of the frequency with which many change workplaces.

Fortunately for tech workers and those engaging their services, a little tax awareness and planning might save a few percent of wages. There may soon be some legislative changes coming to the rescue, too, but more about that later.

In a nutshell, an unemployment insurance tax is imposed on employers, based generally upon wages paid for employment within the state. The tax is imposed on only the first $7,000 of taxable wages paid by each employer to each employee for the year. Because of the maximum amount of wages exposed to the tax, the rate structure is referred to as the "$7,000 ladder." The standard tax rate is 3.4%; however, it fluctuates according to the employer's "experience rating," or history of claims. The tax is administered by the Employment Development Department (EDD).

The classic employment situation envisioned by the EDD is personified by Rosie Ribbetori, a blue-collar worker operating a machine. During 1994, Ribbetori works for only one employer, for $30,000-plus bennies. The EDD taxes her employer on the first $7,000 of her wages. After running up that $7,000 ladder, the tax is capped, and the employer has no further exposure on Ribbetori's wages, even if she earns $1 million.

In contrast, look at Poindexter Numlach, a successful and popular database programmer who easily finds employment from project to project making about $50 an hour. In 1994, Numlach will earn $70,000 from ten employers who pay him $7,000 each. At the end of the year, Numlach receives ten W-2s.

> Since the EDD does not consider self employment income to be wages, partnership distributions to partners generally aren't subject to unemployment taxes.

Each time Numlach changes jobs, he has to run up the $7,000 ladder anew. Since he has ten employers, they pay the unemployment insurance "premium" ten times, even though he could make no more of a claim than if he had only one employer. In essence, the EDD has sold Numlach's employers the same Brooklyn Bridge ten times.

Like the Broadway producer who sells 1,000% of the interests in his show, the EDD has held ten firms each completely responsible for Numlach's coverage within the same twelve month period.

Unlike Ribbetori's employer, whose tax bill is only $238, Numlach's employers, assuming the standard rate applies, cumulatively pay $2,380. Firms tend to pass on this tax (or their fear of it) in the form of lower wages. Moreover, because their tax rate increases with the number of claims filed by anyone who recently worked for them, some will hesitate to hire project workers.

Suggestions To Avoid Multiple Taxation

To avoid multiple taxation, various planning techniques can be explored, including incorporating.

Consider Chris Crash, a specialized software developer charging $70 an hour for projects related to aviation and map reading. Rather than offering these services directly, Crash incorporates. Crash Corporation, rather than Crash personally, enters into various contracts to provide programming and design services, and Crash Corporation, not the customer, pays the salary. Because Crash now has only one employer, namely Crash Corporation, the $7,000 ladder need only be run up once. The clients are off the hook for employment taxes (in terms of both direct tax payments and future increases in experience rating assessments), so they have more budget to pay for the services.

Having incorporated, there are other tax advantages as well. For example, the cost of Crash's medical insurance is fully deductible by the corporation. Even if Crash doesn't want ordinary medical insurance, the corporation might adopt a self-insured medical reimbursement plan and deduct all of the medical expenses. There are legal, non-tax advantages to incorporating as well, but also some complications.

Under the wrong set of circumstances, personal service corporations such as software engineering businesses can be assessed a whopping federal income tax rate of 74.6%. This consists of the personal service corporation income tax rate of 35%, and a special penalty tax of 39.6%. These top rates are typically avoided by the business paying out all its earnings, until there's nothing left to tax. (For a better explanation, see the MicroTimes reprint referred to at the end of this article.) Even in the best circumstances, California corporations are usually subject to a minimum tax of $800.

For those not wishing to incorporate, another approach is forming a partnership. In this alternative, the partnership, rather than the corporation, enters into the service contracts.

Partnership draws are not considered wages. Instead, each individual partner is generally considered self-employed. Since

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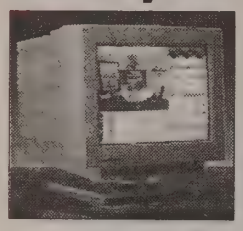

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the EDD does not consider self-employment income to be wages, partnership distributions to partners generally aren't subject to unemployment taxes.

Of course, there are other tax (and not-tax) considerations to incorporating or forming a partnership, so be sure to consider the whole picture before making a decision, and seek professional advice when appropriate. If the business structure is an obvious sham created solely for tax avoidance, the arrangement may not be recognized by the powers that be for tax purposes. The government tolerates a certain degree of creativity to spur capitalism along, but pigs get slaughtered.

Yet another way to avoid the EDD's reach is to structure a deal with the employer such that the worker is an independent contractor. For tax purposes, the distinction between an employee and contractor is generally based on the common-law test of control over the worker and how the work is done. Currently, there's no consistent way to tell how the test applies to contract techies, so such arrangements involve an element of risk. Define the terms carefully in writing from the outset, addressing as many issues of control as practical, in case of a future audit.

Proposed New Legislation

Fortunately, the State Legislature may soon clarify this issue. California Assembly Member Charles Quackenbush has introduced A.B. 3519, intended to reduce uncertainty in determining whether a worker is an employee or an independent contractor. A key provision is that a taxpayer could ask the EDD for written advice in advance about the structure of such arrangements, and the EDD would be bound by it's own reply.

In mid-April, Lewis Shireman, vice president of the Computer Software Industry Association, and I testified in Sacramento before the Revenue and Taxation Committee in support of A.B. 3519.

Shireman pointed out that this legislation would add predictability to the assessment process. "The bill clearly provides the computer industry with the opportunity to dispel one of the negative myths associated with using computer consultants. Clients have feared retroactive reclassification of consultants as employees with the resultant penalties. The bill would remove this fear for California companies" for purposes of the EDD.

I testified as to how the current uncertainty inhibits the hiring of legitimate independent contractors, and unfairly forces some workers through the EDD wringer repeatedly. (As this story goes to press, it is rumored that the Governor is threatening a veto.)

Rules & Regulations

While state employment tax hardly impacts one's income the way federal taxes can, anyone in the computer industry should know the politics and economics involved, because the splash is still big enough to soak many technical professionals.

Officially, unemployment tax is a mandatory insurance premium covering the cost of unemployment benefits. When the EDD pays claims, that drives up the employer's tax rate; just as traffic accidents increase your auto insurance.

But the EDD is a highly politicized agency with less obvious agendas. In essence, they subsidize some industries at the expense of others. Rather than being paid by all employers uniformly according to the claims of each, the annual unemployment premiums are capped in a way that holds down the cost for those industries most responsible for unemployment.

A manufacturer might pay only a small amount on behalf of a semi-skilled laborer who, after being laid off, can survive off the unemployment system for months. Unlike the technical worker, whose career growth depends upon a constant stream of projects, the laborer is less motivated to take a lower-paying job just to work. The technical worker avoids being on the dole for long or will begin to rust, in terms of professional momentum.

This creates a hidden subsidy for manufacturing, construction, and agribusiness at the expense of skilled services.

Unemployment tax revenues go into the state's unemployment insurance trust fund, which by law is designed to be self-sustaining: for every dollar paid out, someone pays a dollar in.

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Because manufacturing and construction are in the doldrums, these industries are bleeding the insurance trust fund even faster than usual. To keep that trust funded, someone out there must get clobbered. Technical workers and service industries are among the currently disfavored.

The EDD has promulgated industry-by-industry regulations providing guidance on employer vs. independent contractor status. These regulations are largely identical to current federal guidelines, but they white-out one or two favorable lines—insufficient to arouse much opposition.

The new rules look and feel like well-established and equitable federal guidelines. However, the EDD would now tell you that they aren't bound by federal precedent because they now go by their own set of rules. Authority and precedent that the IRS accepts would no longer work for them, and you could be socked with back taxes, interest, and penalties if a worker treated as an independent contractor is determined to be an employee.

When such misfortune happens, employers often just throw in the towel and pay the back taxes, because the EDD offers to waive penalties if the employer treats the workers differently in the future, and because it's too expensive to fight. Intimidated employers pay employment taxes on the fees of programmers and other technical workers, due to the chilling effect of risking misclassification. Ultimately, the EDD would substitute established federal law with their own, political agenda-toting bureaucrats.

Because the software industry is on the paying rather than the receiving end of this subsidy system, they have actively worked to limit the EDD's grasp. Among other things, they are warding off EDD attempts to assert that contract programmers are employees.

Meanwhile, big, blue-collar labor unions are lobbying to get independent contractors reclassified as employees, so that more employers can subsidize the system.

Contract techies are thus finding it harder to get work as non-employee, independent contractors. With each W-2 job, they climb that $7,000 ladder and the EDD cleans up.

No matter how the current battle turns out, technical professionals and those using their services still need to plan their tax strategies. The weapons below will help to arm you for the onslaught.

- Assembly Bill 3519, as introduced by Assembly Member Quackenbush.
- An issue of *Software Watch*. Legislative Update Newsletter of the Computer Software Industry Association, representing over 3,000 software companies in California.
- "Horwitz, Worker Status Test Unchanged by Supreme Court" (*Taxation for Accountants, June 1992*), reprinted with permission of Warren Gorham Lamont.
- "Developers and Programmers—To Incorporate or Not?" *MicroTimes*, September 1993.
- IRS Revenue Ruling 87-41, listing the 20-factor test used by the IRS in determining if an individual is a common-law employee. ■

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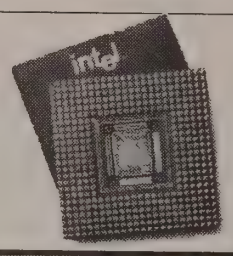

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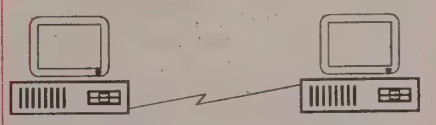

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Asserting Your Independence

The More Things Change, The More They Stay The Same

One of the guiding principles of early UNIX systems was the notion of "device independence": an operating system should behave more or less uniformly, regardless of what sort of terminal or printer or modem it must interact with.

The UNIX command line interface is part of the device independence legacy, as is the practice of maintaining databases (termcap, terminfo, printcap, modemcap) that describe the capabilities of different kinds of peripherals that might get attached to UNIX systems.

This is a very conservative principle. At its worst, it seems to impose a "lowest common denominator" of functionality: don't let any of the terminals do anything that all of them can't do.

The good people who invented the termcap database had problems enough coping with a world that included both hardcopy terminals (the "teletypewriters" from which we get the acronym "tty") and full-screen terminals ("glass ttys"). They could hardly have foreseen what terminals (not to mention workstations) would be like two decades later.

Indeed, because user interface hardware changes so rapidly, device independence is a little like atheism. You can avoid a lot of grief by asking an avowed atheist exactly Which god's existence is being denied. Device independence works the same way: which devices do we want independence from?

Today, the notion of device independence seems quaint. It is a reminder that UNIX was not invented by hardware-manufacturing robber barons, but by professional and academic researchers who needed a system that would be workable regardless of what their capital budgets could afford and that would not be rendered obsolete by the arrival of new technologies.

Things are subtly different now. UNIX still provides a measure of protection against obsolescence, but now it is driven by the companies that make the hardware, none of which is willing to be bound by common denominators. Now the denominators are largely proprietary, and device independence has fallen into something like disrepute. The hardware and software technologies for user interfaces have become very sophisticated, and it would be something like a sin not to use them.

The Net: Last Stronghold Of Device Independence?

For the last year or two, however, we've been treated to an odd flashback as people everywhere have become intoxicated with the Internet. The main vehicle for getting people on the Internet has been dialup access to UNIX "shell" accounts with a timesharing service, something that looks suspiciously like a return to ASCII terminals and device independence.

(Internet hosts don't *have* to be UNIX-based, but many of them are. The popularity of UNIX machines on the Internet isn't accidental. The UNIX vendors have done an excellent job of bundling network services based on the Internet protocol with the operating system itself.)

A UNIX shell account is just a login account: a password-protected user name that is associated with a home directory. There's nothing particularly fancy about it. Thanks to the UNIX heritage of device independence, it doesn't make much difference what kind of computer or modem or software you use. Your dialup connection to a shell account doesn't require special hardware: it works over virtually any sort of modem.

The scenario for getting connected is a familiar one. You run the terminal emulator, connect to your modem, dial the number of the timesharing service. When the modem on the other end of the line answers, you receive a login prompt. After logging in, you can work interactively using your home computer just as you would an ASCII terminal connected directly to the timesharing system.

FTP will bring a 1MB file from Australia to San Jose in about twelve seconds. Using kermit to get that file from the time-sharing system in San Jose to your computer across town could take a couple of hours.

If the timesharing computer happens to be connected to the Internet, you can meander all over a global network doing what you like as long as you don't want to do anything that an ASCII terminal can't handle. There are relatively bug-free ASCII client programs for all the common Internet applications. Working from a dialup shell account, you can use gopher and the World Wide Web in character mode to reach the same information that everyone else reaches. You just won't be able to look at bitmapped images right away. You'll have to download them for viewing later.

The Fly In The Virtual Ointment

As attractive as this sort of access may seem, it does have its drawbacks. One of these is largely psychological: dialup access just feels terribly retrograde. Your home computer probably runs a graphical user interface of some sort. When you access the Internet over a dialup connection, your computer's very fine color monitor, its undoubtedly wonderful mouse, and its ability to display graphics go unused.

There's also the problem of downloading any files you collect from the Internet. Through a dialup connection, your home computer is simply invisible to the Internet, so every file you retrieve with FTP and gopher and all the other Internet applications arrives in your directory on the timesharing computer. A separate step is required to bring the file to your home computer. FTP will bring a

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- Media Vision **Pro Audio Spectrum 16** W/SCSI Interface
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- **10CD Titles**

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VESA LOCAL BUS IMAGE 486SLC-66 VLB

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- 486SLC-66 VL IBM CPU, AMI BIOS
- Math-Coprocessor/Internal 16K Cache Memory
- 128K Statick RAM Cache
- 4MB 70ns RAM Memory on Board
- 250MB IDE hard drive
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA Monitor, .28DP, non-interlaced at 1024x768, edge to edge
- 32-Bit VL-Bus SVGA Adaptor true color (16.7 million colors), 1MB RAM
- 32-Bit 4HD/4FD hard drive controller
- 2 Serial, 1 Parallel and 1 game ports
- Tower Case with 230 watt power supply
- Enhance 101 Keybord
- 400-DPI High Resolution Serial Mouse

INTEL 486DX-33 w/256VLB $1199
INTEL 486DX2-66 w/256K VLB $1299

ISA IMAGE 486SLC-66

$1049

- 486SLC-66 IBM CPU, AWARD BIOS
- Math-Coprocessor/Internal 16K Cache Memory
- 64K Static RAM
- 4MB 70ns RAM Memory on Board
- 200MB IDE hard drive,
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA Monitor, .28DP non-interlaced at 1024x768
- 24-Bit Cirrus Logic SVGA true color card (16.7 million colors), 1 MB RAM
- 16-Bit 2HD/2FD hard drive controller
- 2 Serial, 1 Parallel and 1 game ports
- Tower Case with 230 watt power supply
- Enhance 101 Keyboard
- 400-DPI High Resolution Serial Mouse

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IBM 486-66MHZ ISA $259
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A: IMAGE MULTIMEDIA KIT

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Mitsumi CD-ROM 250ms 300Kb/s Dual Speed
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Dual Speakers
Multimedia Encyclopedia/Animals
U.S. Atlas/World Atlas
Typing Teaching/Chess Master

B: IMAGE MULTIMEDIA KIT

$485

Toshiba 3401B CD-Rom 200ms
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Dual Speakers
Multimedia Encyclopedia/Animals
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1MB file from Australia to San Jose in about twelve seconds. Using kermit to get that file from the time-sharing system in San Jose to your computer across town could take a couple of hours.

And finally, there's the problem of having to know something about UNIX. This is a real problem for a lot of people who are interested in the Internet but could care less about UNIX. This burden of knowledge is the real cost of device independence: the user has to supply a lot of intelligence that might otherwise be delegated to a machine or a piece of software. If you happen already to know something about UNIX, that cost may well be marginal. But, if you're completely new to UNIX, the cost may appear to be prohibitive.

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Independence: The Next Generation

Fortunately, device independence really is relative. When devices get smart enough and cheap enough, it's just plain silly to assert your independence of them, and in the case of Internet access this has begun to happen. The lowest common denominator for Internet access isn't as low as it used to be.

First of all, fast modems have gotten cheaper. If your goal is Internet access, a modem that will handle 14.4KB is almost a necessity. Of course, this is just as much a benefit to the dialup shell account user as it is to the next generation.

Next, the software to extend the Internet protocol to a desktop computer over a serial line has become a commercial reality. Implementations of the Point-to-Point Protocol (PPP) are now plentiful. (See the "PPP Information" sidebar.) PPP allows your home computer to connect to the Internet as a full-fledged Internet host via a phone connection over a regular voice line. This is much cooler than an interactive dialup session, but only if your modem is fast.

Finally, there has been a tremendous effort to develop GUI-based Internet applications. If you want to run gopher under Windows, you have a choice between several gopher clients. There's a Windows version of the Mosaic browser for the World Wide Web. All of this is resulting in better (well, more stable) software that anyone can collect from the Internet itself. In addition to the software that is published through the Internet, the number of commercial products to integrate the most common Internet applications is also growing. (If you have an Internet access provider, chances are that company is about to go into the software business by providing an integrated interface to the Internet.)

PPP In Practice

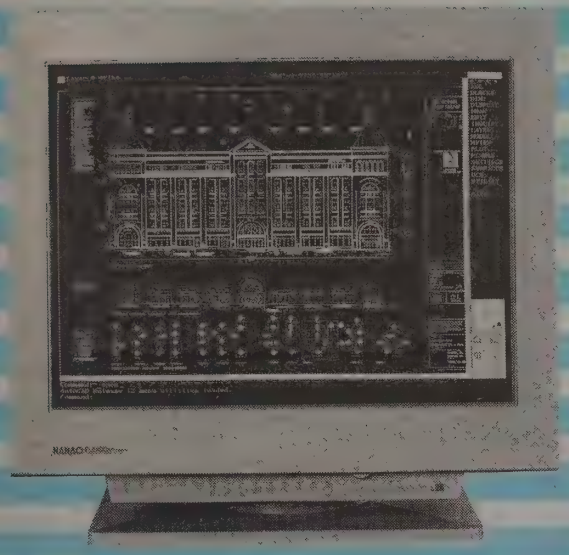
All this activity means that the Internet connection of the very near future will be different. You'll still use your home computer and a modem, but the modem will be faster. In place of a terminal emulation program, you'll have a different piece of software to handle the chore of dialing, connecting, and logging in. Instead of starting an interactive session, however, this software will manage a PPP session. In this session, your computer will have an Internet protocol address all its own.

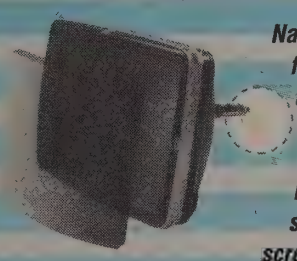
Once the PPP connection to the Internet is established, it will slip quietly into the background. You can run the Internet application of your choice on your

continued on page 49

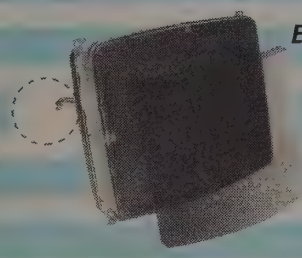
The CALIFORNIA COMPUTER The CALIFORNIA

A Professional Monitor Maker !!!





Nanao T Series monitors feature ErgoPanel,™ an anti-reflective panel that prevents reflection of outer lights without losing sharp images on the screen.



ErgoCoat,™ a protective coating on all Nanao F Series monitors, reduces glare plus static electricity accumulation on the CRT surface.

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The F NANAO Series.

F780i-W Flexscan $3695

21", .26mm Dot, Flat Face
1600 x 1200 at 80Hz Flick -free refresh
H. Scan Frequency : 45-100k Hz
V. Scan Frequency : 55-120Hz
Video Bandwidth : 200Mhz
Picture & Color control, Power Manager
Dimensions: 19.7"(W) x 21.1" (D) x 19.1" (H)
For CAD/CAM, DTP and image processing
UL, CSA, FCC (A), DHHs,
MPR-II Requirement TCO 1992

F760i-W Flexscan $1895

21", .28mm Dot, Flat Face
1280 x 1024 at 74Hz Flick -free refresh
H. Scan Frequency : 30-78k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 120Mhz
Picture & Color control, Power Manager
Dimensions: 19.7" (W) x 21.1" (D) x 19.2" (H)
For CAD/CAM, DTP and image processing
UL, CSA, FCC (A), DHHs, MPR-II

F560i-W Flexscan $1350

17", .26mm Dot, Flat Face
1280 x 1024 at 76Hz Flick -free refresh
H. Scan Frequency : 30-82k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 120Mhz
Picture & Color control, Power Manager
Dimensions: 16.2" (W) x 17.6" (D) x 16.3" (H)

F550i-W Flexscan $995

17", .28mm Dot, Flat Face
1280 x 1024 at 74Hz Flick -free refresh
H. Scan Frequency : 27-65k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 80Mhz
Picture & Color control, Power Manager
Dimensions: 16.2" (W) x 17.6" (D) x 16.3" (H)

F340i-W Flexscan $635

15", .28mm Dot, Flat Face
1024 x 768 at 76Hz Flick -free refresh
H. Scan Frequency : 27-61.5k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 75Mhz
Picture & Color control, Power Manager
Dimensions: 14.4" (W) x 16.2" (D) x 14.9" (H)

The T NANAO Series.

T660i Trinitron $1495

21", .30mm Dot, Trinitron
1280 x 1024 at 76Hz Flick -free refresh
H. Scan Frequency : 30-82k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 130Mhz
Picture & Color control, Power Manager
Dimensions: 19.3" (W) x 20.5" (D) x 19.2" (H)

T560i Trinitron $2145

17", .25mm Dot, Trinitron
1280 x 1024 at 76Hz Flick -free refresh
H. Scan Frequency : 30-82k Hz
V. Scan Frequency : 55-90Hz
Video Bandwidth : 130Mhz
Picture & Color control, Power Manager
Dimensions: 16.2" (W) x 18.6" (D) x 16.4" (H)

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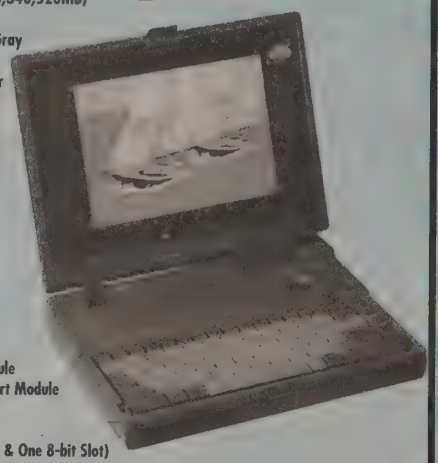
Removable Hard Drive

Replaceable Module Pack

- 486 series CPU (Easy to Upgrade)
- 4MB RAM, Easy to Expand up to 20MB
- Removable 170MB Hard Disk (260,340,520MB)
- 3.5" 1.44MB Floppy Drive
- 9.5" Mono 640 x 480 Backlit 64 Gray (Upgradable to Color LCD)
- 9.5" Du-Scan 640 x 480, 256 color
- 9.5" Active 640 x 480, 512 color
- Simultaneous CRT & LCD Operation
- Ports for 1S, 1P, Ext VGA Monitor/Keyboard
- Ports for AT expansion box
- 83-Key Keyboard
- Carrying Case & AC/Adapter
- Weight 6 lbs. with Battery
- 11.7"W x 8.4"D x 1.95"H



OPTIONAL MODULE PACK AND OTHER OPTIONS:

- Trackball (Standard) Module
- Fax/Modem (9600/2400bps) Module
- Lan Adapter Module / 2nd Serial Port Module
- PCMCIA* Type II Interface Module
- Scanner Module / SCSI Module
- AT Expansion Box (Four 16-bit Slots & One 8-bit Slot)

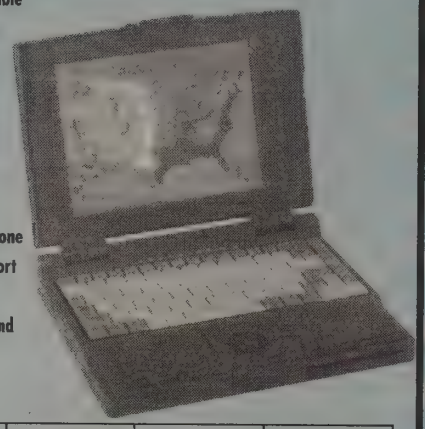
	MONO	DUAL SCAN COLOR	ACTIVE COLOR
486SX-33, 4MB/170MB	$1340	$1820	$2740
486DX-40, 4MB/250MB	$1590	$2070	$2990
486DX2-66, 4MB/250MB	$1790	$2270	$3190

FB-300 Multimedia Notebook

LOCAL-BUS

PCMCIA

- 32Bit VL-Bus
- 9.5" VGA Display (CCFT, Dual Scan and Active)
- Intel 486SL, SX and DX Upgradable
- 4MB RAM Expandable to 32 MB
- Phoenix BIOS
- 3.5 Removable Floppy Drive Exchangeable to second battery
- Built-in speaker, microphone and 25mm Super Trackball
- 1 Parallel, 1 Serial, 1 Line-in, 1 Line-out audio Jack, 1 Microphone Jack, external VGA, Keyboard Port
- PCMCIA Slot Type III
- 6 lbs with Battery Optional second battery, Docking Station, Sound Card and Pen Map



SL ENHANCED	MONO	DUAL SCAN COLOR	ACTIVE COLOR
486SX-25 4MB/170MB	$1575	$2055	$2975
486DX-33 4MB/260MB	$1835	$2395	$3315
486DX2-66 4MB/260MB	$2035	$2595	$3515

TS-380

- Intel 486DX-25 upgradable DX4
- 4MB RAM up to 20MB
- 3.5" Floppy Drive
- 250MB up to 520MB Hard Drive
- Build-in Trackball Mouse in center
- PCMCIA III Slot
- 1 Serial, 1 Parallel, VGA, Keyboard, Docking port
- 9.5" Mono/Du-Scan/Active
- Weight: 5.8lb w/battery
- Dimension: 11"x8.5x1.73

NP-302

- 4Mb RAM, 64K cache
- 1.44Mb Floppy Drive
- 120Mb HD Removable
- 10" Mono LCD Passive 640 x 480, 64
- Build-in Trackball Mouse 1 Serial, Parallel, Mouse, VGA(800 x
- Keyboard, Port
- 83-key keyboard
- Lightweight: 5.5lbs
- Demensions: 8.7" x 11.1" x 1.65"

TATUNG

CM-17MLP

- 1280 x 1024/.26mm (N.I.)
- 1024 x 768 at 75Hz Refresh
- MPR II Low Radiation
- Multi-sync EPA

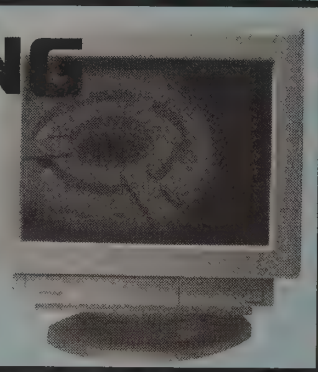
$749

TATUNG

CM-17MBR

- 1280 x 1024/.28mm (N.I.)
- 1024 x 768 at 75Hz Refresh
- Digital Control
- Multi-sync
- Dynamic Focus
- Flat Screen

$679



SUPERTRAK

- Trackball Mouse
- Fit All Notebook

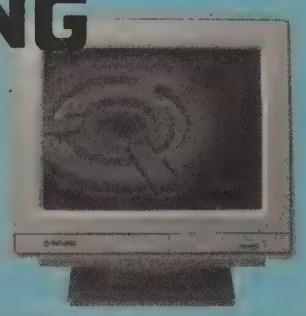
$29

TATUNG

CM-15VDE

- 1024 x 768/.28mm (N.I.) at 75Hz Refresh
- Digital Control
- Low Emission
- EPA,Flat

$369

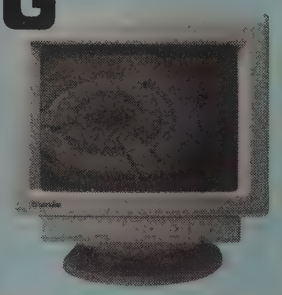


TATUNG

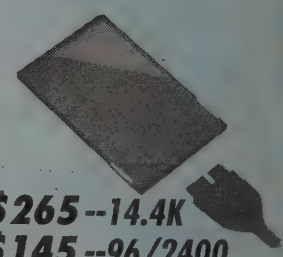
CM-14UAE-LP

- 1024 x 768/.28mm (N.I.) at 60Hz Refresh
- Low Emission
- EPA

$279



PCMCIA Fax/Modem



$265 --14.4K
$145 --96/2400

PENTIUM / PCI

- Intel Pentium 66Mhz Processor
- 256K Cache up to 512K
- 8MB RAM up to 128MB
- 1.2 & 1.44 Floppy Drives
- 420MB Hard Drive
- PCI IDE/FDD Controller w/2S, 1P
- PCI SVGA Card w/2MB
- 15" SVGA Non-Interlaced Monitor
- 101 Enhanced Keyboard
- Serial Mouse
- Mid Tower Case

$2659

All 486 systems come with 270 MB hard drive, 4 MB RAM, TEAC 1.2 & 1.44 MB folppy drives, 14" SVGA monitor 0.28mm Non-Interlaced, VESA Local-Bus SVGA card, Local-Bus IDE I/O with 2 serial, 1 parallel ports, Mini-Tower case, 101-key keyboard, Serial mouse.

486DX2 VLB66	486DX2 VLB50	486DX VLB33	486DX ISA33
$1385	$1225	$1195	$1065

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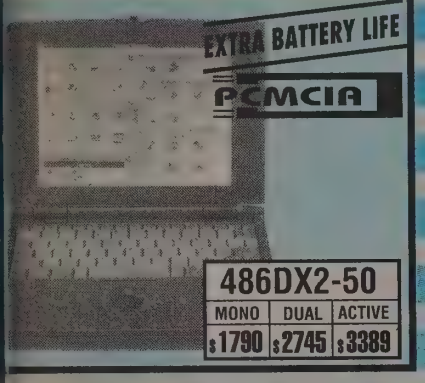
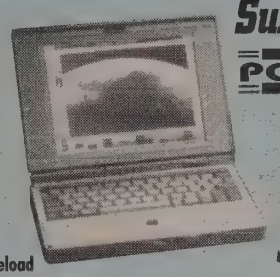


486DX2-50		
MONO	DUAL	ACTIVE
$1790	$2745	$3389

MiTAC Multimedia Sub Note

- Intel 486 SX-25 SL Enhanced
- 4Mb RAM, 8K Int cache
- Ext. 1.44Mb Floppy Drive
- 120Mb Hard Disk Removable
- 2 PCMCIA Slot
- 9.5" Mono LCD Passive
- Build-in Trackball mouse
- 1 Serial , Parallel, Mouse
- 8 Bit Sound Card Build-in
- Less than 4 lb
- Small: 1.5" x 10.5" x 7.8"
- MS-DOS6.0, Windows 3.1 Preload

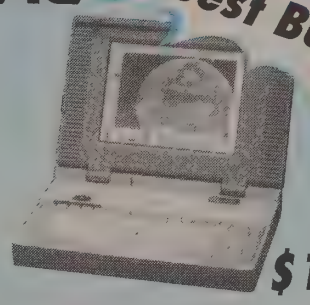
PCMCIA



$1350

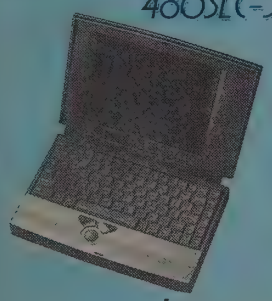
MiTAC Best Buy

- Intel 486SX-33
- 4Mb RAM, Up to 20 Mb
- 1.44Mb Floppy Drive
- 130 Mb Hard Disk
- 8.5" Passive LCD Display
- Build-in Track Ball Mouse
- 1 Serial, 1 Parallel Mouse
- Lightweight: 6.5lbs
- MS-DOS6.0, Windows 3.1



$1695

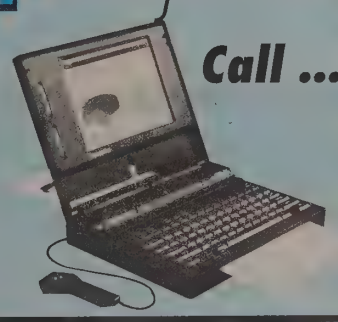
486SLC-33



$1195

Canon Notejet 486

- 486SLC-25 MHz
- 4MB Up to 12MB
- 1.44MB Floppy Drive
- 130MB Hard Disk (190MB Option)
- Bubble Jet Printer Built-In
- Automatic Sheet Feeder Built-In
- PCMCIA - 2 Type II
- 10" LCD VGA Screen
- Canon 2-Button Hand Hold Trackball
- MS DOS 6.0, WINDOWS 3.1
- 4 Hour Battery
- 7.7 Lbs. w/Bubble Jet Printer Inside



Call ...

Canon Dual Scan Color

SL Enhanced

- Intel 486SX-25
- 4Mb RAM
- 120Mb Hard Disk
- 3.5" 1.44Mb Floppy Drive
- 9.5" Mono Passive LCD 640 x 480, 64 Gray
  9.5" Dual Scan Color Passive LCD 640 x 480
- 1 Serial, Parallel, VGA, Mouse,
  Fax/Modem 9600/2400 (Send/Receive) port
- Build-In Trackball mouse in center
- Weight: 6.3lbs W/battery
- MS-DOS 6.0, Windows 3.1, MS-Works,
  Micro Fax Preload

$1395...MONO $2095...COLOR

Canon Bubble Jet BJ-10e

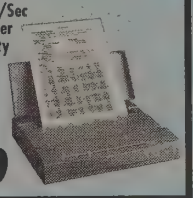
Best Buy

Refurbish

$165

Canon Bubble Jet BJ-10sx

- 110 Characters/Sec
- Laser-Like Printer
- 2-Year Warranty



$240

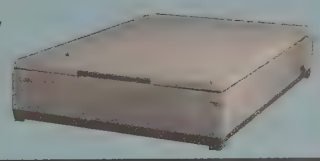
Canon Laser Quality Bubble Jet Pric BJ-200e

- 256 Gray Scale
- 4 Page Per Min., 360 DPI Resolution
- 100 Sheets or 10 Envelopes
- EPSON & IBM Emulation
- 49KB Buffer, Weight 6.6 lbs.
- 2 Year Factory Warranty

$275

Canon IX-4015 Color Scanner

- 24 bit Color
- 400 DPI x 1200 DPI Hi-Resolution
- 20 Second Color Scanning Speed
  (10 Second Mono)
- One Year Warranty



$995

Canon BJ-200

Best Buy

Refurbish

$225

Canon BJC-600 Personal color Printer

- Prints 360 dpi on Plain Paper
  for Brilliant Color Quality
- Doubles as a Laser Quality,
  Black & White Printer
- Individual Ink Cartridges
- 100 Sheet Feeder for Letter,
  Legal, Envelopes
- 20 Scalable True Type Font
- 2 Year Warranty

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- Fast Letter-Wide Printing
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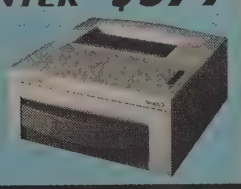

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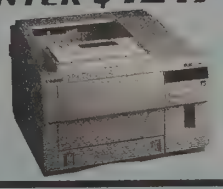

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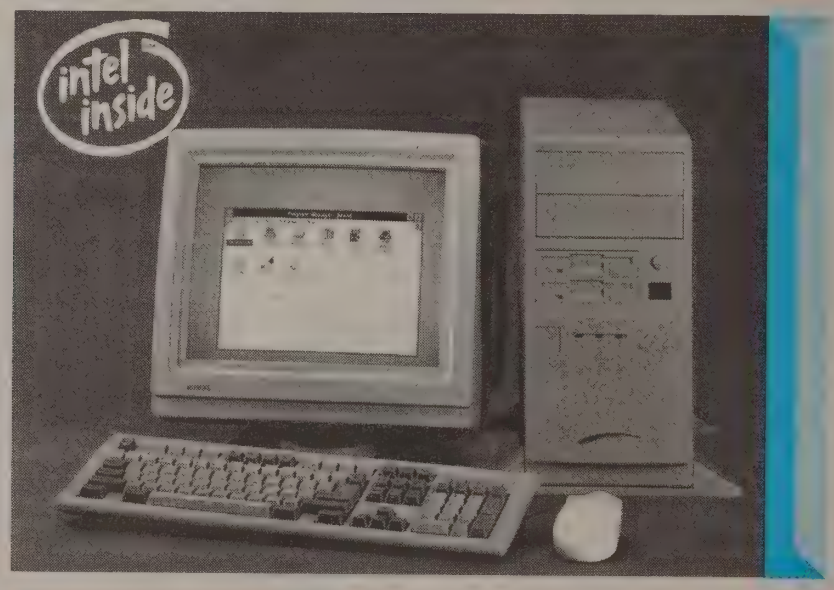

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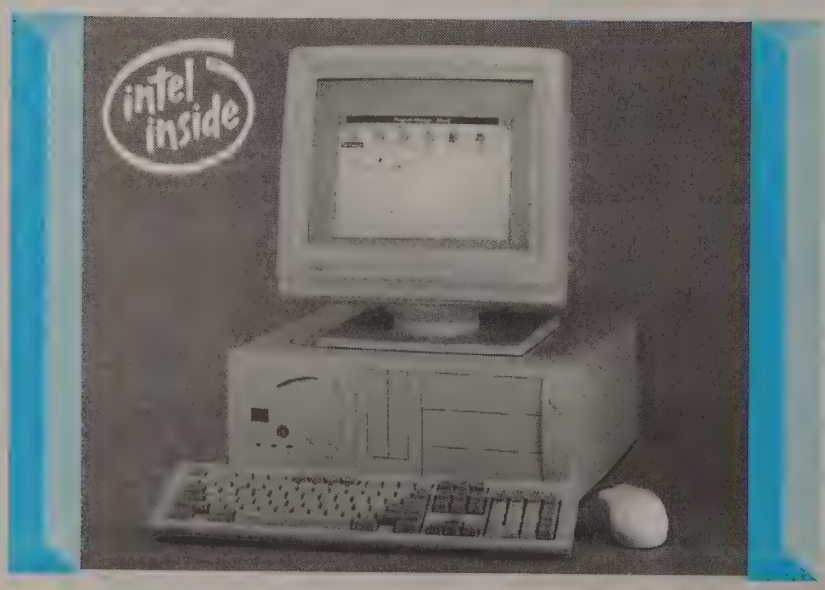

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continued from page 44

own computer, under the user interface you usually use with all its graphical capabilities. Technically, your Internet access still comes from the timesharing machine, but you don't need to know anything about that computer or how to use it.

If this is so great, why isn't everyone doing it already?

PPP access to the Internet is generally more expensive than dialup shell accounts. This is strictly a function of how the Internet access providers structure their fees. It's relatively easy to find a shell account for a fixed rate; PPP accounts tend to have a connect time charge tacked on to the flat rate.

Additionally, PPP software is more expensive than terminal emulation programs, but prices are coming down. (The manufacturers are beginning to realize that PPP can be sold independently of a conventional TCP/IP product.)

Configuring PPP can also be relatively difficult. You'll have to piece together instructions from the software vendor and your Internet access provider, but it is at least no more difficult than learning UNIX, and after all, you only have to configure PPP once in your lifetime.

Finally, there's the performance issue. Almost everything you do on the Internet will use a client/server connection of some sort. With a dialup shell account, your modem is between you and the client program you run on your Internet access provider's computer. The connection between the client and its server happens over very fast lines. With PPP, the client programs are run from your computer, and consequently your modem is between the client program and the server it connects with. This makes a big difference: it stretches out all of the client/server interactions you have over the network. FTP'ing a 1MB file from Australia directly to your desktop via PPP will take a lot longer than twelve seconds, but still a lot less time than the kermit file transfer would take.

The annoying thing about PPP performance is not the speed of file transfers, however, but the amount of time it takes to do things you know are trivial, like scrolling back and forth in a large PostScript document or downloading a list of the names of all 5000 USENET news groups. Waiting for that list, you begin to think that the device you really want to be independent of is your brand new, "fast" modem.

It's always something. ■

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PPP Information

PPP information used to be hard to find, but that's rapidly changing. The newsgroup "comp.protocols.ppp" hosts ongoing discussions of the protocol and the products that implement it.

A nicely detailed FAQ (Frequently Asked Questions) document is maintained by the hosts of comp.protocols.ppp and posted periodically to that group and to news.answers.

The PPP FAQ includes pointers to free software available through the Internet as well as a summary of commercial packages that implement PPP.

Two of the established commercial PPP implementations are:

•PC/TCP from FTP Software, which includes DOS-based network software with clients for both DOS and Windows. (FTP Software, 2 High Street, Andover, MA 01845. Phone: 508/685-4000. Email: info@ftp.com)

•Chameleon is a Windows-based network package that includes clients for the common TCP/IP services (FTP, TELNET, etc.) and clients for some Internet applications (gopher and a news reader). There is a serial-line-only version named Internet Chameleon. (NetManage Inc., 10725 North De Anza Blvd., Cupertino, CA 95014. Phone: 408/257-6405. Via gopher: gopher.netmanage.com)

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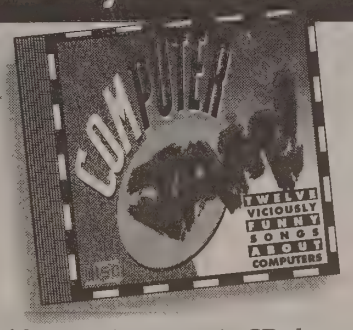

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continued from page 28

too little emphasis on marketing. In the kind of market-driven economy in which we are presently operating, there is virtually no hope of sustaining large numbers of any form of telework center—particularly the expensive and service-intensive Executive Suite model (which Grantham calls "IntelliCenters")—unless the formula is found for attracting sufficient numbers of people to the center and making them willing to support it.

So far, most of the telework centers opened in this country (and around the world) have either been satellite centers totally supported by a single organization for its own benefit, or publicly funded and subsidized centers which have not been able to survive long once the funds run out. Neither of these models is likely to provide the kind of proliferation that is needed. Instead, we must wait for an approach to the business of telecommuting support that—like a McDonald's or a 7-11—provides the mix of products and services telecommuters want at a price they are willing to pay.

If anyone has any information about such enterprises, I'd be happy to relay the information to others through this column. For more information on how to accurately classify telework centers and sites, contact Charles Grantham at the Institute for the Study of Distributed Work, (510)834-1485, fax: (510)834-1486.

Charles County Telework Centers

One of the most exciting new telecommuting-support projects is taking place in Charles County, MD, where one of a series of networked pilot centers for federal teleworkers is just opening its doors. The center is located at Charles County Community College, in the southeastern part of the state, and is hoping to support about 90 people in 45 telework workstations.

Unlike many other publicly funded projects, this one has a budget for marketing, and is apparently doing a good job of it. Before the year is out, project staff will complete and implement a marketing plan, study how the telework center can meet some of the needs of disabled workers, write a business plan to show how the concept can be extended to the private sector, and generally attempt to prove the Community Telework Center concept successful, from a business perspective. For more information, contact the president of the Charles County Community College, Dr. John Sine. ■

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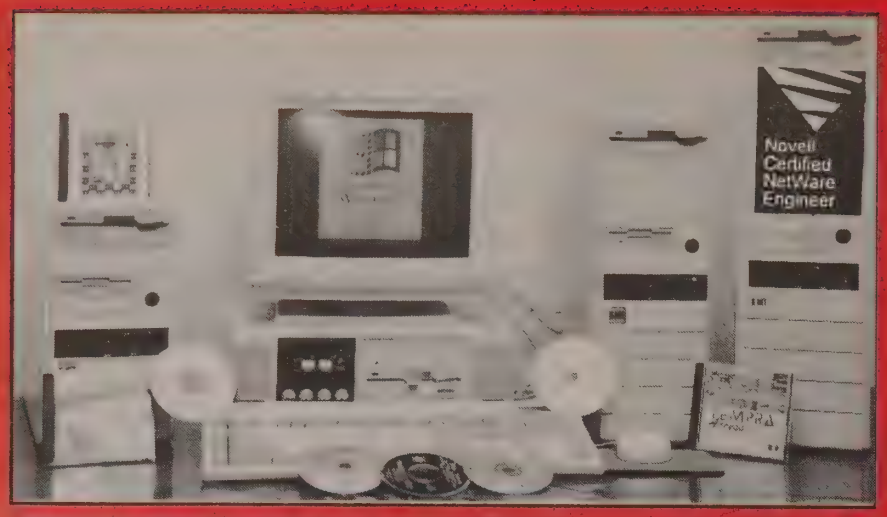

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A Tale Of Two WordPerfects (And A Word)

By Lenny Bailes

WordPerfect 6 is a superdreadnought of a package. It cures the font management problems of 5.1, eliminating an entire sub-industry.

For years, WordPerfect has had the largest part of the market share in PC word processing. Factors in its success included the recently curtailed free telephone support system, definitive support of a wide range of DOS printing devices, and the tireless work put into its maintenance releases.

As PC computing has entered the arena of giant corporate competition, the rules of the game have changed, and WordPerfect is being forced to adapt to these changes. Pressured by the success of Windows, and of Microsoft's Windows word processor, WordPerfect has put two years into building a "bridge" between its DOS products and the graphic-based, mouse-oriented Windows environment.

It now finds itself placed between a rock and a hard place. After four years as a mainstay in the business world, v5.1 of WordPerfect for DOS gave way early last year to v6. Somewhat later, v6 of WordPerfect for Windows appeared.

WordPerfect 5.1 for DOS was the most popular, efficient, and full-featured word processor in the PC world for a long time. The first DOS word processor to incorporate sophisticated graphics handling and font management, WordPerfect's something-for-everyone design philosophy is now slowly being overshadowed by the elegance and efficiency of Microsoft's Mac-inspired Word for Windows. With Windows 3.1 tamed and harnessed as a stable work environment, Microsoft has made a sizeable dent in WordPerfect's market share.

WordPerfect's answer to the challenge has been to do what it knows best—write new code that throws in the kitchen sink. Its new DOS and Windows word processors can do everything but slice bread.

WordPerfect 6—DOS

WordPerfect 6 for DOS is an amazing program: the last gasp of the PC-DOS insurgents. It provides a super-powerful file management system, and gives users the choice between a text-based and WYSIWYG work environment. The best Microsoft Word features have their equivalents here, and the program also contains a powerful spreadsheet editor. You can edit and recalculate Lotus and Excel files within a document, or build new spreadsheets with over one hundred different formulas. The traditional WordPerfect indexing, macro, and printing options have tripled in power.

The idea behind WordPerfect 6 for DOS was to build a bridge between DOS and Windows—to let users gradually adapt to working in a mouse-driven, WYSIWYG environment. Both the text and graphic modes can display a ruler line and ribbon (in emulation of Word for Windows). WordPerfect's own invention, the button bar, has been ported over from WordPerfect for Windows. Up to nine documents may be edited simultaneously in resizeable windows. Microsoft's collapsible-outline feature has been adapted from Word, and the program now includes the Grammatik grammar checker.

WordPerfect 6 is a superdreadnought of a package. It cures the font management problems of 5.1, eliminating an entire subindustry. The Orem team has also thrown in the popular WordPerfect Office 4.0 shell. MIS types in small businesses can use Office to construct a smooth, task-switching DOS front end for their nontechnical personnel.

The only fly in the ointment is this: PC market trends suggest that many companies have exhausted their willingness to consume the DOS mindset in their productivity applications.

In the past, WordPerfect has been easy for a certain segment of the population to memorize, if somewhat arbitrary in the construction of its command set. But the function-key-driven interface that served Orem well for so many years is maxed out in WP v6. The power is there under the hood, but there's nothing intuitive about the way the new features are embedded in the command set.

The Orem programmers have done their best to let users of previous versions use their arcane knowledge, but the interface is now bursting at the seams. Sure there's a pull-down menu system, but like the function-key assignments, it is arbitrary.

The attraction of Windows is that Microsoft is standardizing the interface with universal menu options and keyboard shortcuts. The keystrokes that users memorize in Windows can apply to many applications. The Windows world frees them from the necessity to learn an isolated command set for a single program.

There are tradeoffs in productivity between the two environments. DOS is still snappier, easier to maintain, and more economical in terms of necessary hardware investment. Many law firms and small businesses are still plugging away, happily, with their clerical departments on WordPerfect 5.1. These people don't need sophisticated desktop publishing, or built-in drawing tools. They may also have substantial time and money invested in employees who know the WP 5.1 command set backward and forward.

The programmers at Microsoft have done their best to make Word the most user-friendly, logically designed word processor in the industry.

Although a transition to the 6.0 DOS version will require some additional training time, almost 80% of the old command set can be retained by selecting a "5.1" compatible keyboard. The "Coach" feature can also assist novice users to learn the program. "Coaches" let you point at a series of task-oriented topics on a "how-to" menu, and then walk you through step-by-step, interactive tutorials.

Like DOS, itself, WordPerfect 5.1 may simply be too widely used to disappear from the PC scene for a number of years. Recognizing this fact after a temporary period of confusion, the company has announced a WordPerfect 5.1 "Classic" upgrade. This is the basic 5.1 program with added file conversion support for DOS and Windows WP 6 files, an internal fax manager, and an enhanced file manager, similar to the one in WP 6 for DOS. WordPerfect 6.0 for DOS, has undergone two maintenance upgrades. Version 6.0b, the current release, has been tweaked for speed improvement. It also includes a series of new macro commands and a revised printer installation program.

Recent news from Orem is ambiguous as to the future status of WordPerfect for DOS. First the company announced that v6 would be frozen as the last release of DOS-based WordPerfect, then they reversed this announcement. Currently, WordPerfect is focusing most of its corporate energy on marketing and developing its Windows products.

WP And Word For Windows: The Kitchen Sink, Again

With WordPerfect for Windows, v6, the company has gone a long way toward giving Microsoft a run for its money.

Unlike the 5.1 and 5.2 Windows versions, number 6 is a true Windows application, not a ported hybrid. It contains an integrated file manager, provides true WYSIWYG editing in multiple views, and introduces real paragraph styles. All of the features of the DOS version (except the WordPerfect Office Shell) can be found here, along with a series of Windows-specific utilities and desktop publishing frills. The package includes fifty scalable TrueType fonts, a remarkable file-indexing utility, and WP Draw, a complete image-editing and drawing application. The battle plan here is "Anything Word for Windows can do, we can do, too—plus a little extra."

The cost for this is that WordPerfect for Windows occupies 35MB of hard disk space, realistically requires at least 6MB of RAM, and runs only on 386 or better CPUs in Windows' Enhanced Mode. You'd better have a fast hard disk and some memory left over for a disk cache, too, or you'll be twiddling your thumbs whenever you select a new menu item, page ahead in the document, or reformat the text. The Orem programmers have promised a speedier maintenance upgrade that should be available by the time you read this review. (Note: I had problems with WP4W crashing during graphic operations and spell checks, until I increased the size of the Windows swapfile to over 10MB. With a large swapfile, these errors disappeared on my system. The maintenance release is supposed to address this problem.)

By upgrading to WordPerfect for Windows 6, you definitely outpower the previous version of Microsoft Word, but in general, a good many new bells and whistles have been developed in tandem by both companies. Both new versions include:

- Improved button bar/toolbars (with readable text descriptions of the preprogrammed functions)
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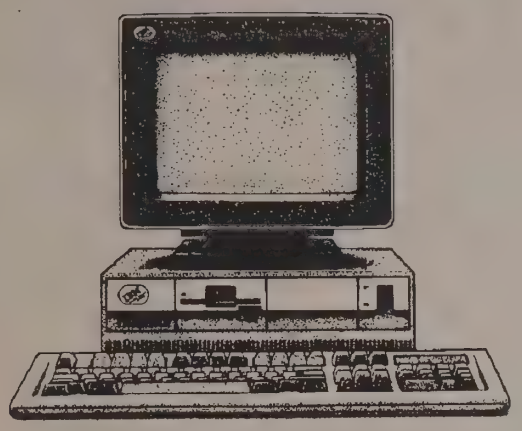

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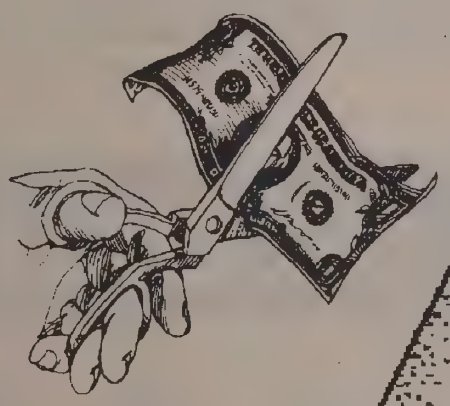

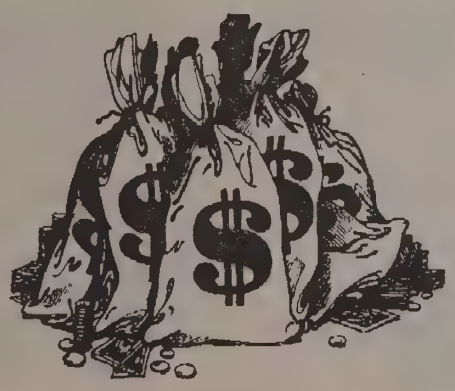

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WordPerfect has gone all out to make its offering the champ at document management. Nothing in Word can match the way WordPerfect sorts files, remembers directory listings, appends document summaries, and performs text search-and-retrieval over multiple hard disk partitions.

WordPerfect's built-in spreadsheet module imports and edits files from Excel, Quattro Pro, or Lotus 1-2-3, and contains over one hundred built-in formula functions. It's conceivable that if you own WordPerfect, you won't need a separate spreadsheet application. By contrast, Word 6.0 is completely dependent upon Excel.

The programmers at Microsoft have done their best to make Word the most user-friendly, logically designed word processor in the industry. Word is slimmer and more elegant than WordPerfect, while lacking some of its brute computing power. In WordPerfect, the emphasis is on programmable user options, whereas Word tries to make your decisions for you.

Word's new Autoformat option can analyze your document and assign aesthetic paragraph styles to the text (kind of like a "DTP" grammar checker). The Word document screen and user interface are more cohesively organized. Evolving from the original Macintosh interface, Word is more ergonomic. You will be able to find formatting features without constantly searching through menus. The Word help system is a joy to use, and outmatches WordPerfect in context-sensitive tutorials.

Microsoft has also gone to great pains to provide WordPerfect users with an alternate interface and help modules within Word. They may continue to use the WP 5.1 command set until they're ready to make the transition to Microsoft's way of doing things.

Upgrade Concerns

So who will be best served by upgrading to one of the Windows word processors, who can use WordPerfect 6 for DOS, and who might be better off staying with WordPerfect 5.1?

For individual users and businesses concerned with text-based word processing, the transition from WordPerfect 5.1 to 6.0b for DOS should not be too difficult. If you attempt to use the WYSIWYG editing modes, the 6.0 version has a sluggish response time. But in text mode, you can turn off anything that you don't understand.

Added nesting of menu options may slow down speed typists, but this can be overcome by constructing a few simple macros. Users may want to configure the new version to use the 5.1 keyboard until they get used to some of the shuffling of their standard command set.

If you seriously want to increase your word processing capability, WP 6's great spreadsheet power, superior indexing and file management, and improved font

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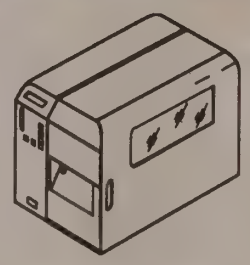

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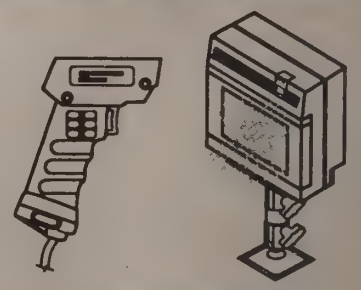

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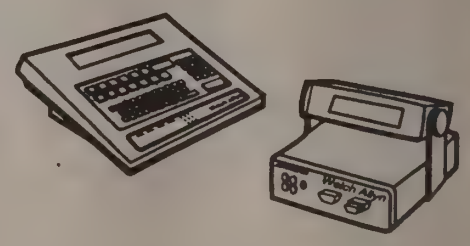

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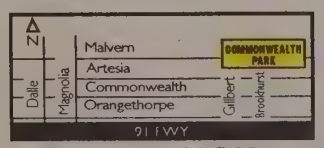

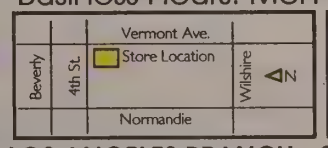

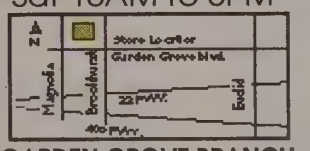

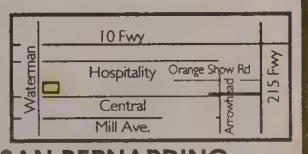

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handling may justify the expense of an upgrade.

Note that the WordPerfect Macro language has undergone a major change in the 6.0 version. An included conversion utility will convert many keystroke-based routines, but some macros may need to be completely rewritten. Learning the new macro language will take time for those who set up turnkey systems for novices.

Law offices should be aware that conversion from the 5.1 document format is less than perfect. The printer drivers in 6.0 may not deliver 100% identical placement of line breaks and page breaks. Your layouts for pleading boxes, headers, and footers may have to be redone. Complicated desktop published documents with embedded graphics and multiple columns will almost certainly have to be worked on in 6.0 to retain the same appearance. (The problems with importing 5.1/5.2 files into the Windows version of WP 6 are slightly more pronounced.)

The WYSIWYG layout features packed into this product are impressive, notwithstanding the growing obsolescence of DOS in a Windows world. You'll want a fast 386 or better if you plan to use WP 6 for DOS in graphics mode.

Currently, WordPerfect is focusing most of its corporate energy on marketing and developing its Windows products.

Summary: Which Windows Product Is The One?

If you need a document management system under Windows, if you do database publishing and work with a variety of data formats, if you love building templates and systems for editing a variety of document types, then you may prefer WordPerfect to Word. WordPerfect includes a two-page editing mode for documents, more clipart, more templates, a powerful drawing program, superior file management, built-in spreadsheet capabilities, and slightly more sophisticated document indexing. You'll need powerful hardware to put WP4W through its paces at a comfortable speed. I recommend at least 8MB of RAM and a 486-33 as minimum requirements.

If you're looking for intelligent, automatic formatting procedures, an excellent help system, a user-friendly command set, and integration with the other products in Microsoft Office (Excel and PowerPoint), then Word may be your choice. (If you own a version of Excel, you can read spreadsheets directly into Word, and pop up Excel in the middle of a document to edit, reformat, or create new datafiles.) Word makes it easy to do page layout. It has one hundred levels of editorial "undo," an interactive spelling corrector, logically constructed toolbars, and a series of page "Wizards." (Like the WordPerfect Coaches, these routines walk you through the set up of a variety of document types.) ■

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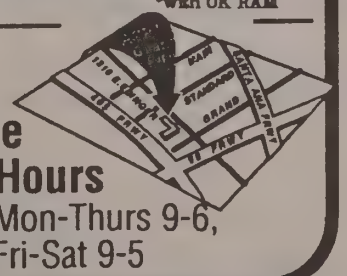

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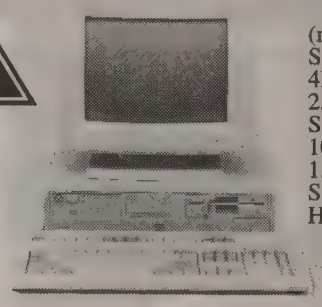

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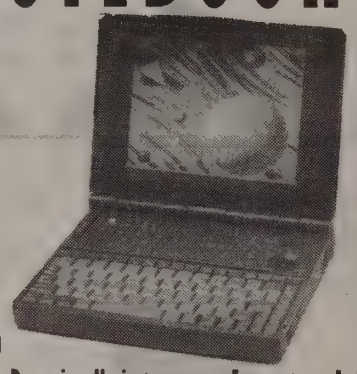

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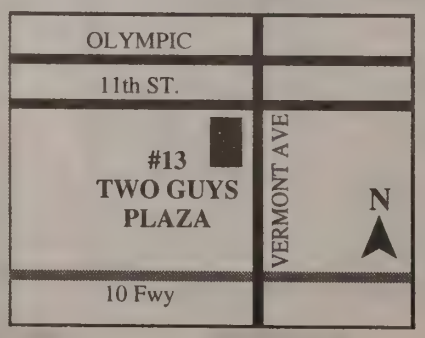

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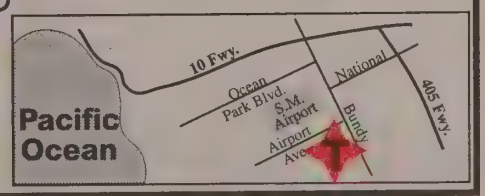

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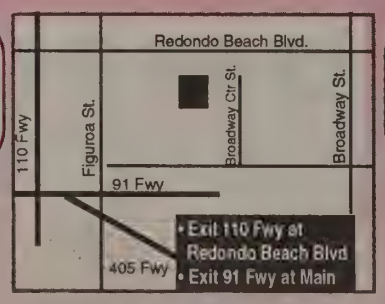

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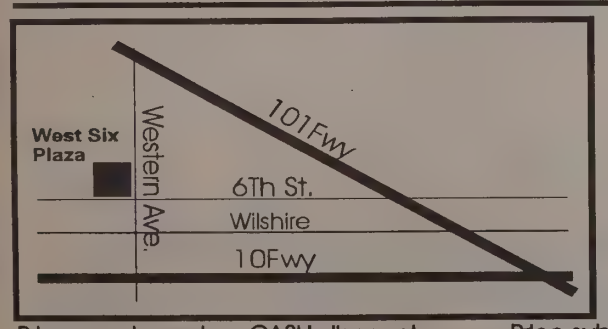

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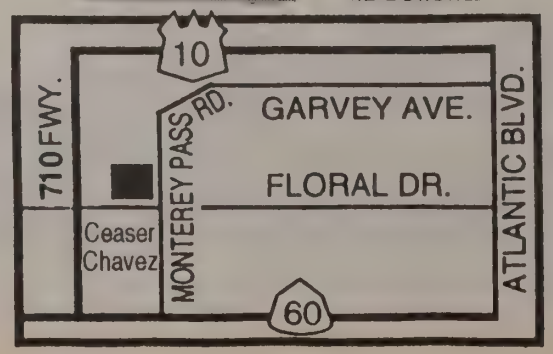

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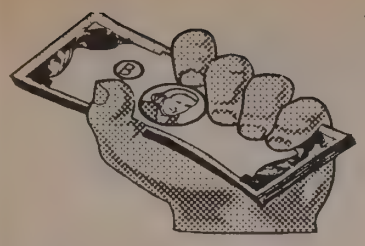

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MICRO MARKETPLACE

A Multimedia Primer

By Lenny Bailes

What You Will Need To Consider Before You Purchase That New CD-ROM Drive

Multimedia is finally becoming more than a buzzword thrown around by computer industry pundits. The pontificators, and, of course, the clone dealers always hope that you'll spend your money on the latest and greatest. But CD-ROM drives have already proved their usefulness to researchers and businessmen alike. Access to large documents on CD-ROM combines the storage advantages of microfiche with a set of enhanced display and retrieval options made possible by hypertext.

General reference tools like *The Oxford English Dictionary* on CD-ROM offer keyword search features not available in the paper edition. (The *OED* CD-ROM presently costs an arm and a leg, but some writers and libraries may find it worth the price.) *Grolier's Multimedia Encyclopedia* is considerably cheaper, integrating video, sound, and hypertext search capabilities with traditional word and subject indices. For the nerdier among us, WordPerfect Corporation now offers five years of *WordPerfect Magazine* and three years of *WordPerfect for Windows Magazine* on CD-ROM for $89.95. The collection features a plethora of search options to access articles, tips, and macros.

CD-ROM drives have gradually assumed a dual function. In addition to serving as data reference tools and music/video entertainment devices, they are becoming the media of choice for installing/running operating systems and productivity applications. Some companies have begun a policy of pricing the CD-ROM version of their software cheaper than the package installed from floppy disks. Other companies now provide dual-media installation in all of their products. Installing a program or suite

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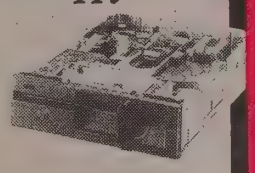

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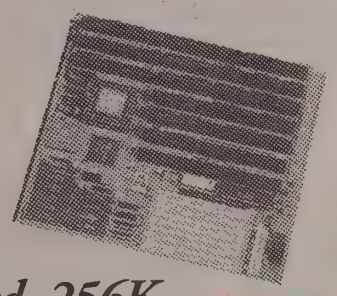

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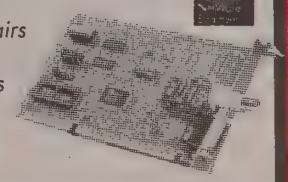

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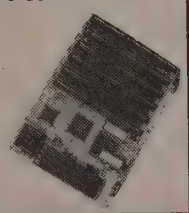

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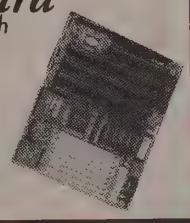

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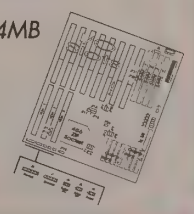

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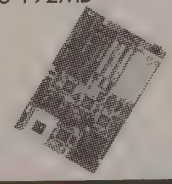

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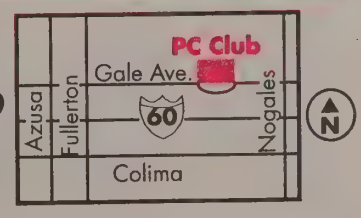

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from a CD-ROM drive is faster and more convenient than sitting through a floppy installation.

CD-ROM Quality Issues

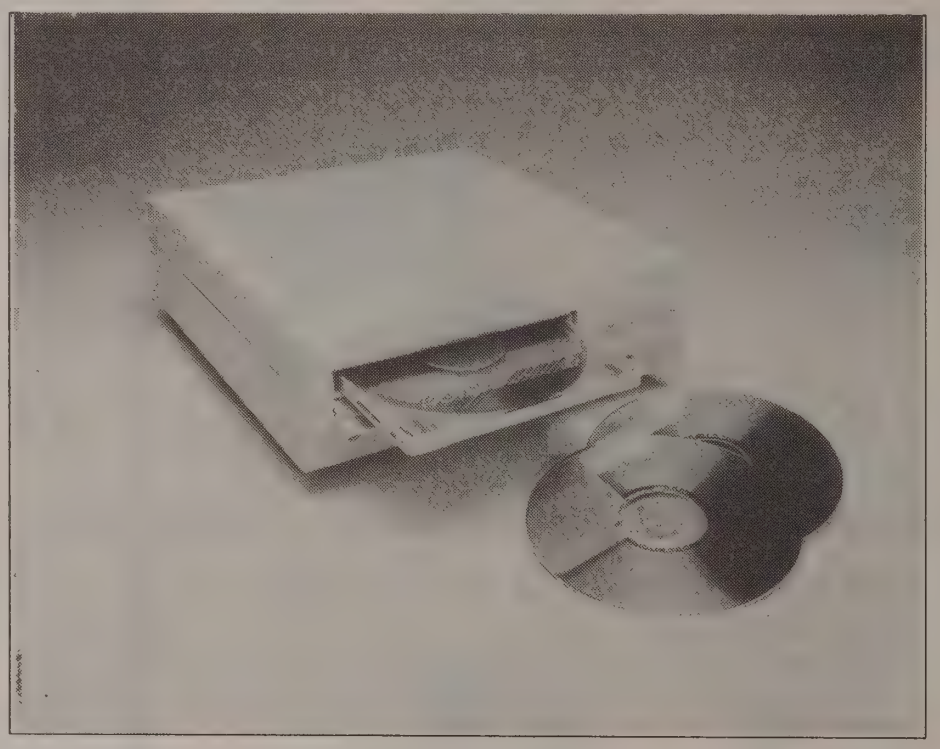
You can now buy CD-ROM drives of varying quality at four different performance speeds, and with too many interface connection types. Older, single-speed drives are slow, and don't support the features implemented in current CD software. Single-speed drives are available now, mostly from bargain-bin resellers at less than $100. You won't be able to use them for multiple-sessions with Kodak PhotoCDs. They're probably also too slow to properly display animated videos.

Double-speed drives are the current industry standard. A data transfer rate of 150KB/sec or more is generally required for satisfactory display of animation. A first-rate drive should deliver a transfer rate greater than 250KB/sec with an access time less than 250ms. Some older, double-speed drives lack the ability to read multiple-session PhotoCD disks. (Multiple-session means that you can return a CD-ROM disk made to the Kodak specification to your film developer with each new roll of film. You can increment stored photo sessions on the disk and see all of them on a multisession-compatible drive. Older, single-session drives will display only the first session on the disk.)

Triple- and quadruple-speed drives are out there now in the marketplace, and will probably replace the double-speed standard within about six months to a year. At present, most CD multimedia applications are programmed specifically to work with double-speed drives. So the current performance improvement obtained with higher-speed drives is minimal. (The straight disk reads involved in an ASCII text search do sometimes go faster with triple- and quadruple-speed drives.) Eventually, more sophisticated multimedia software will also be reprogrammed to deliver better performance with higher-speed hardware.

The Toshiba XM3401 drive that I tested for this article is generally regarded as the fastest double-speed drive in the industry. Toshiba provides a series of benchmarks that claim the 3401 also outperforms NEC triple-speed models in many instances. The Toshiba drive has a random access rate of 195ms and a basic data transfer rate of 320KB/sec with the 8-bit SCSI adaptor card included in the kit. (A 16-bit SCSI card will make it run faster.)

The interface card used to connect the CD-ROM drive to the PC bus is another important issue. Many less expensive drives are programmed to work with proprietary 8-bit host cards. These use non-standard drivers that may or may not conflict with other peripherals installed in your system. If you later decide to add SCSI devices, you'll need to purchase a separate SCSI adaptor card, and use up two slots on the motherboard. A CD-ROM drive that supports the SCSI interface may prove to be a better option. SCSI (Small Computer Serial Interface) permits you to daisy-chain a variety of devices (hard drives, CD-ROMs, scanners, etc.) to a single controller card. Or, if you own a Macintosh, you can plug the drive directly into the back panel of the computer. A SCSI-compatible CD-ROM drive allows a PC system to be expanded later. Many dealers bundle a CD-ROM drive and SCSI host adaptor together in a bargain package. This can save you as much as $100 to $150 (the price for a good standalone SCSI adaptor card).



Toshiba's new TXM-3401EI external double-speed CD-ROM disc drives feature a 2.2 times rotational speed to provide a fast 330KB/sec transfer rate and an industry first 200 msec random access time.

Proprietary CD-ROM drives and host cards are cheaper than SCSI models, but their data transfer rates are generally slower. They also may not run all of your CD-ROM software. Some DOS and Windows multimedia applications are written to a standard called ASPI (Advanced SCSI Programming Interface). These programs won't run with proprietary CD-ROM interfaces. Update drivers for proprietary adaptor cards may also become harder to locate as SCSI wins more adherents.

The Toshiba XM3401 is an external drive that ships from the manufacturer with an 8-bit SCSI card from Future Domain. Both card and drive are easy to install, (although the drivers supplied by Toshiba address the hardware directly, rather than conforming to the ASPI standard). One of the nicer features of the XM3401 is its ability to record digital sound samples off CD tracks without an additional sound card in the system. The sound can be routed directly through the SCSI bus and written to a hard disk. (This is called MCICDA compatibility, and many CD-ROM drives don't have it.)

It's also easy to detach the 3401 from the computer, and plug it into a stereo system as a standalone component. The drive has an external volume control and standard RCA line-out jacks. Toshiba markets the 3401 in a series of kits. There's a Macintosh kit, a PC AT kit, and a SUN workstation kit. You can also buy the 3401 as an internal drive. This makes it much easier to install with a PC sound card.

SCSI Ins And Outs

There are currently two SCSI programming interfaces in widespread use, called SCSI and SCSI-2. (SCSI-2 provides a superset of the older SCSI interface.) For CD-ROM drives, it doesn't make much difference which interface is used, because of their inherently slow data transfer rate. For hard drives, a host adaptor programmed for SCSI-2 greatly improves performance. SCSI-2's "fast synchronous" transfer mode can increase data throughput from the 2MB/sec rate of a standard 16-bit SCSI card to as much as 10MB/sec.

Several companies market universal-SCSI driver packs that allow you to take advantage of SCSI-2's more flexible interface. Multiple devices on a single host adaptor can be managed with only one set of drivers. Future Domain bundles a SCSI Value Pack with most of its 16-bit host adaptors. (The Value Pack isn't included for the 8-bit card bundled with the Toshiba CD-ROM package.) SCSI Value Pack includes a set of generic drivers for a variety of CD-ROM drives, an ASPI manager,

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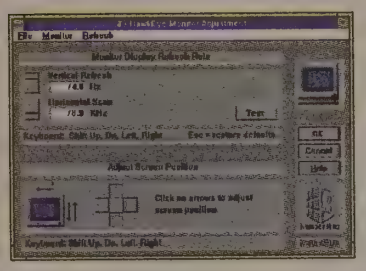

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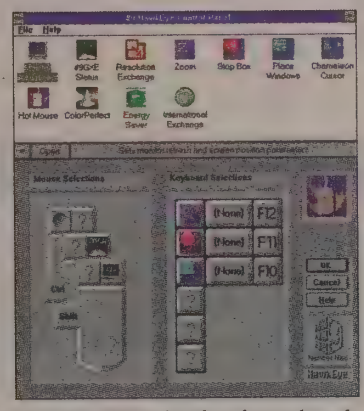
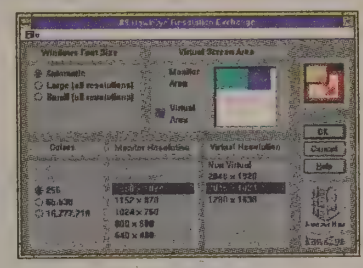
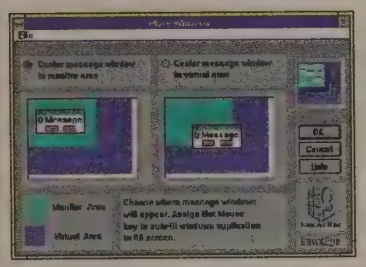


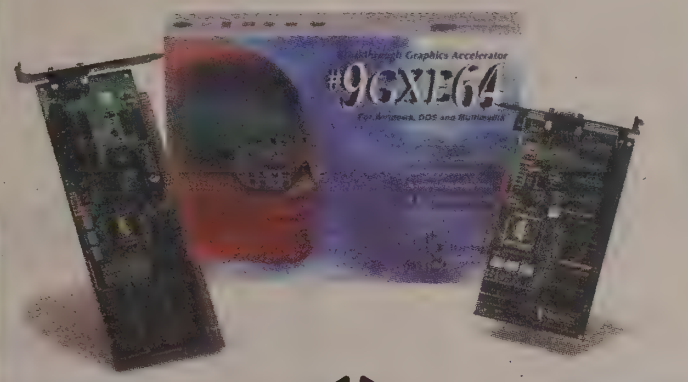
Hot Mouse: Instantly activate frequently used HawkEye for Windows applets by assigning them to mouse or keyboard hot keys.

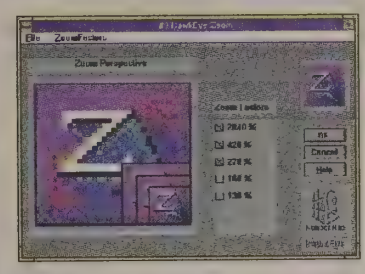


Resolution Exchange: An all-in-one resolution control center to easily select color depth, screen resolution and virtual desktop size.

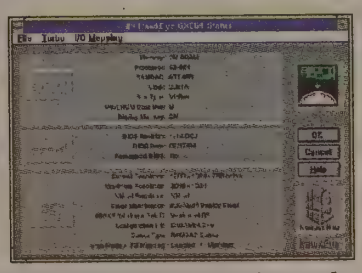


Place Windows: Quickly position dialog boxes to screen center or fit applications to full screen when in virtual desktop mode.

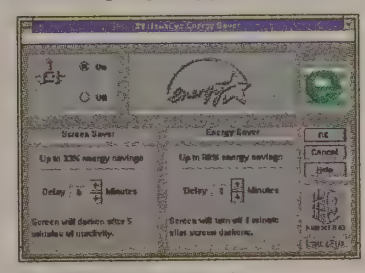




Hardware Zoom: For close-up views, instantly magnify your screen up to five times normal size. Panning brings every pixel into view.



Instant Status: Hardware and software configuration data is immediately available to quickly pinpoint system state-of-health.



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(Refresh rates will vary according to memory model and color depth)

1994 WINAWARD Windows Magazine #9GXE64 April 1994

PC PROFESSIONEL Budget Recommendation #9GXE64 May 1994

PC computing HARDWARE 200 1994 FINALIST #9GXE64 April 1994

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A Multimedia Primer *continued*

and a set of CD-ROM utilities for sound editing and PhotoCD viewing.

Corel Corporation, the authors of CorelDRAW, have a CD PowerPak that includes a series of CD-ROM drivers, CD software applications, and a free set of headphones. Corel's ASPI-aware applications provide greater flexibility in manipulating the CD-ROM drive than the Microsoft utilities included in Windows. The Corel package also includes a CD full of clip art, photographs, sounds, and music.

The PowerPak package should be especially useful for DOS users who are fighting to retain conventional memory for large DOS applications. Their CorelCDX module replaces Microsoft's standard MSCDEX program. It uses a modest 3.6K of conventional memory, compared to MSCDEX's 27K bite into your system resources. (The sidebar accompanying this column includes a tip on how to preserve conventional memory when you're stuck with Microsoft's CD-ROM extensions.)

A CD-ROM DRIVE, by itself, is really only one-half of a multimedia computer. A sound card is the other half.

Adding A Sound Card

A CD-ROM drive, by itself, is really only one-half of a multimedia computer. A sound card is the other half. The sound card adds the capability to record and play digital samples, edit sounds, mix music, and integrate spoken material into your documents and presentations. The sound card also adds a new dimension to multimedia packages like the Grolier Encyclopedia. It allows you to play back spoken lectures, animated movies, and musical compositions that accompany hypertext media.

The Sound Blaster 16 that I tested for this column is the most widely known and compatible sound enhancer for the PC. (The Pro Audio cards from Media Vision are also popular, but don't have as many software packages written explicitly for them.) Getting the CD-ROM and the sound card in your system to cooperate can be a project in itself. Creative Labs markets a series of Sound Blaster kits that include a Panasonic double-speed CD-ROM drive and proprietary interface. The Panasonic 563 drive is almost as fast as the Toshiba 3401. And if you buy the sound card and the CD-ROM drive in one package, the odds are that they will coexist in your system without a struggle. The Sound Blaster/Panasonic combination does not use a SCSI interface. If you'd like to save a slot on the bus (run the CD-ROM drive, sound card, and a SCSI hard drive or scanner through one card), both Creative Labs and Media Vision offer sound cards with a built-in SCSI interface.

The connectors on the Sound Blaster 16

continued on page 151

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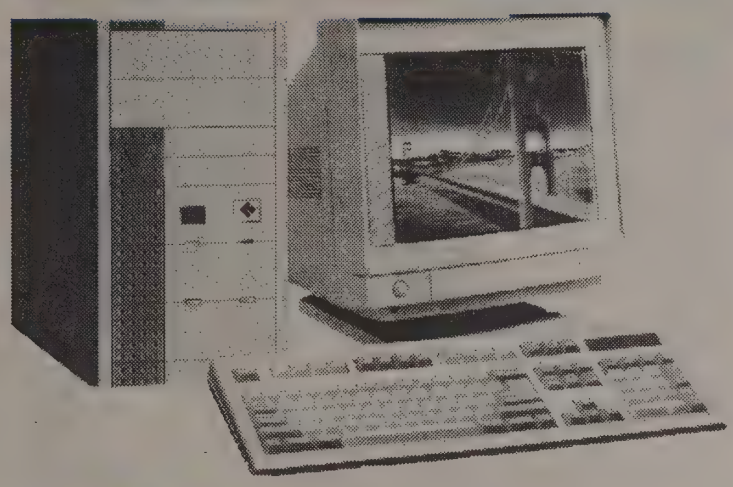

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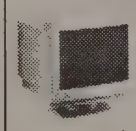

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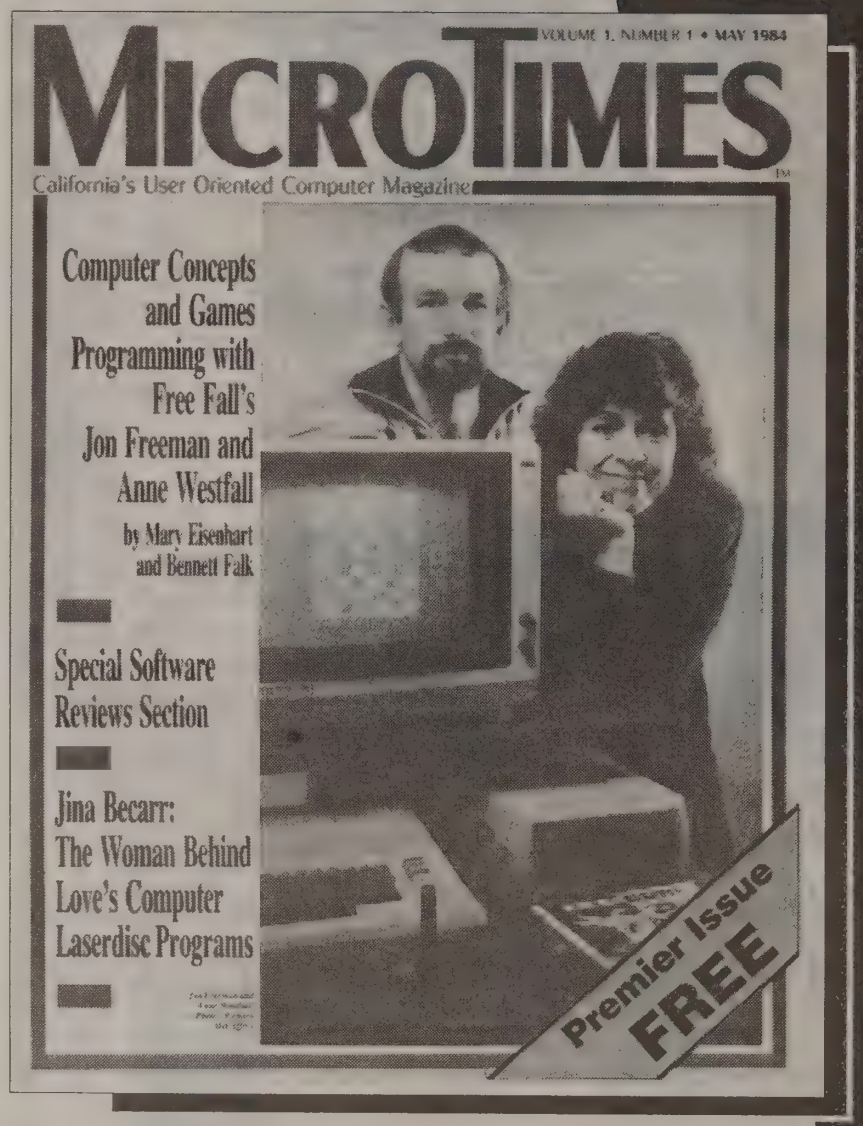
VOLUME 1, NUMBER 1 • MAY 1984
MICROTIMES
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Computer Concepts and Games Programming with Free Fall's Jon Freeman and Anne Westfall
by Mary Eisenhart and Bennett Falk
Special Software Reviews Section
Jina Becarr: The Woman Behind Love's Computer Laserdisc Programs
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Pages From Our Past A decade ago, when the boss announced what we all considered his loony scheme to diversify into computer publishing, none of us had the foggiest notion of what the next ten years would be like. For our readers and ourselves, the personal computer changed the way we live and work immeasurably in that period, and the process shows no sign of stopping. On the whole, it's been an excellent adventure, and it's been our privilege and pleasure to write about it for you.

Anyone who comes to us looking for monolithic viewpoints is likely to be disappointed. We've been fortunate in the liveliness of the computer insustry, and also in our writers, an opinionated lot who bring a wide variety of experiences to their work and frequently disagree, on everything from products to politics. Just like life.

To celebrate this anniversary, we're reprising four of our opinion pieces that appeared at various intervals over the last ten years. Each in its own way is both predictably dated and surprisingly timely; each in its season provoked a good deal of discussion and forceful expression of opinion (Dvorak, as we recall, got two extra columns just from hate mail responding to this particular opus. No doubt we'll get more this time...)

We'd like to thank you for your support over the last decade, and invite you to stay with us as we continue down the digital superhighway. We hope you enjoy these pages from our scrapbook.

—Mary Eisenhart

CRO TIMES

N YEAR

LEBRATION

s Celebrates Ten Years of Interesting Times

April 1986
Beware The Turnpike Effect!
By Jan Lewis

This issue's cover trumpeted the dawn of the Amiga age.

We'll say more about the Amiga age shortly, when we get to Matthew Leeds and his 1992 Farewell to the Amiga; suffice it for now to note that as we go to press, Commodore is in liquidation and the nets are abuzz with rumors of the Amiga's impending acquistion by companies ranging from Philips to NewTek.

The cover photo featured William Volk and David Barrett of Aegis Development, a hopeful young Southern California startup with cool Amiga software. As often happens to hopeful young startups, Aegis gave up the ghost some years back; Volk and Barrett have continued to do interesting multimedia-related things in various settings.

My favorite memory from this issue is of standing in our booth at the Computer Faire passing out many, many copies, and being approached by a couple of disgusted-looking teenagers. Pointing to the cover as if it was week-old fish, they demanded to know why we were featuring the totally worthless Amiga at the expense of the overwhelmingly superior Atari ST. "Can't find any ST writers," I said, truthfully enough, handing them bizcards. "If you know any, have 'em call me."

Having clearly expected a religious debate, they retired from the scene. But a few months later, one of them wrote me, sending me tearsheets from the *Fresno Bee* to prove he could write, and asked if I'd let him do an Atari ST column.

Helmi Kobler was 17 at the time, and indeed he did an Atari ST column for some time. Eventually he went off to Cal, discovered desktop publishing, wrote books, and was most recently seen in the marketing department at 3DO.

Jan Lewis, author of this excerpt, is an industry analyst and consultant with Lewis Research in Sunnyvale. "Beware The Turnpike Effect" first appeared in *Computer Insider*, the newsletter published by the Palo Alto Research Group, of which Lewis was president.

—ME

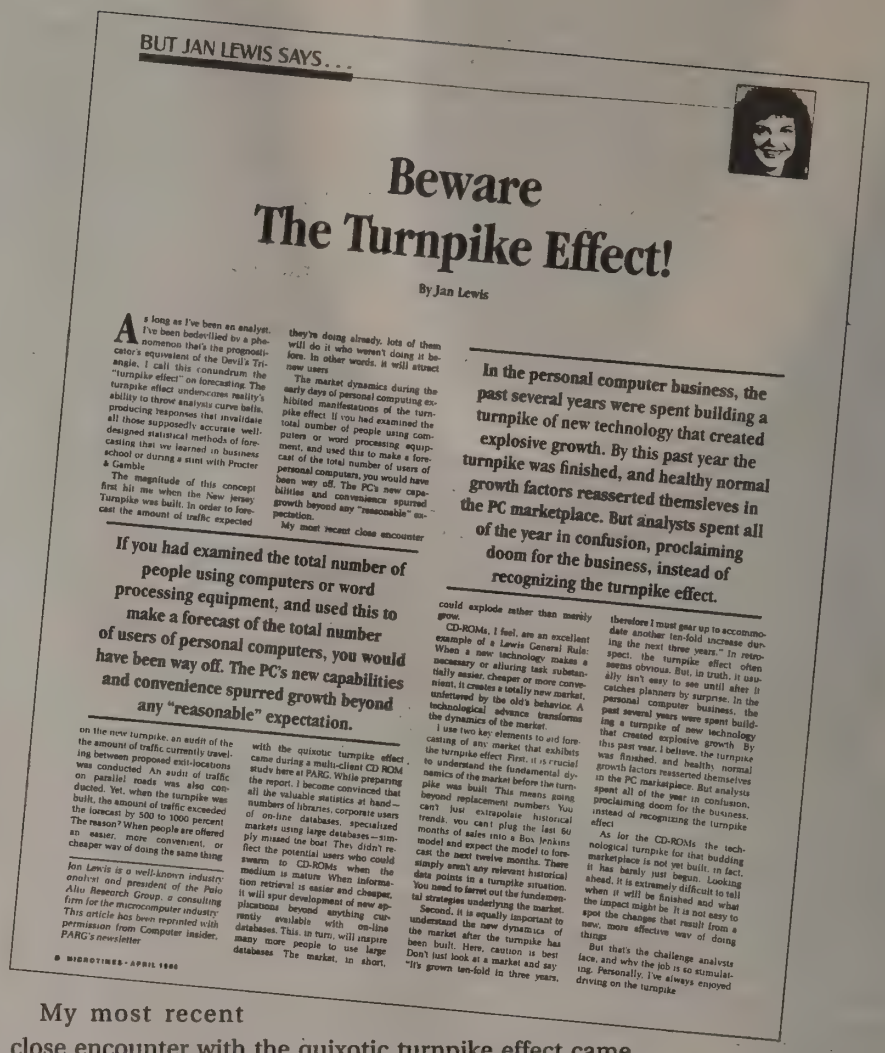
Beware the Turnpike Effect!

By Jan Lewis

As long as I've been an analyst, I've been bedeviled by a phenomenon that's the prognosticator's equivalent of the Devil's Triangle. I call this conundrum the "turnpike effect" on forecasting. The turnpike effect underscores reality's ability to throw analysts curve balls, producing responses that invalidate all those supposedly accurate, well-designed statistical methods of forecasting that we learned in business school or during a stint with Procter & Gamble.

The magnitude of this concept first hit me when the New Jersey Turnpike was built. In order to forecast the amount of traffic expected on the new turnpike, an audit of the amount of traffic currently traveling between proposed exit locations was conducted. An audit of traffic on parallel roads was also conducted. Yet, when the turnpike was built, the amount of traffic exceeded the forecast by 500 to 1000 percent. The reason? When people are offered an easier, more convenient, or cheaper way of doing the same thing they're doing already, lots of them will do it who weren't doing it before. In other words, it will attract new users.

The market dynamics during the early days of personal computing exhibited manifestations of the turnpike effect. If you had examined the total number of people using computers or word-processing equipment, and used this to make a forecast of the total number of users of personal computers, you would have been way off. The PC's new capabilities and convenience spurred growth beyond any "reasonable" expectation.



BUT JAN LEWIS SAYS . . .

Beware The Turnpike Effect!

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My most recent close encounter with the quixotic turnpike effect came during a multi-client CD-ROM study here at PARC. While preparing the report, I become convinced that all the valuable statistics at hand—numbers of libraries, corporate users of on-line databases, specialized markets using large databases—simply missed the boat. They didn't reflect the potential users who could swarm to CD-ROMs when the medium is mature. When information retrieval is easier and cheaper, it will spur development of new applications beyond anything currently available with on-line databases. This, in turn, will inspire many more people to use large databases. The market, in short, could explode rather than merely grow.

If you had examined the total number of people using computers or word processing equipment, and used this to make a forecast of the total number of users of personal computers, you would have been way off. The PC's new capabilities and convenience spurred growth beyond any "reasonable" expectation.

In the personal computer business, the past several years were spent building a turnpike of new technology that created explosive growth. By this past year the turnpike was finished, and healthy normal growth factors reasserted themsleves in the PC marketplace. But analysts spent all of the year in confusion, proclaiming doom for the business, instead of recognizing the turnpike effect.

Jan Lewis is a well-known industry analyst and president of the Palo Alto Research Group, a consulting firm for the microcomputer industry. This article has been reprinted with permission from Computer Insider, PARG's newsletter

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CD-ROMs, I feel, are an excellent example of a Lewis General Rule: When a new technology makes a necessary or alluring task substantially easier, cheaper, or more convenient, it creates a totally new market, unfettered by the old's behavior. A technological advance transforms the dynamics of the market.

I use two key elements to aid forecasting of any market that exhibits the turnpike effect. First, it is crucial to understand the fundamental dynamics of the market before the turnpike was built. This means going beyond replacement numbers. You can't just extrapolate historical trends; you can't plug the last sixty months of sales into a Box Jenkins model and expect the model to forecast the next twelve months. There simply aren't any relevant historical data points in a turnpike situation. You need to ferret out the fundamental strategies underlying the market.

Second, it is equally important to understand the new dynamics of the market after the turnpike has been built. Here, caution is best. Don't just look at a market and say, "It's grown tenfold in three years, therefore I must gear up to accommodate another ten-fold increase during the next three years." In retrospect, the turnpike effect often seems obvious. But, in truth, it usually isn't easy to see until after it catches planners by surprise. In the personal computer business, the past several years were spent building a turnpike of new technology that created explosive growth. By this past year, I believe, the turnpike was finished, and healthy normal growth factors reasserted themselves in the PC marketplace. But analysts spent all of the year in confusion, predicting doom for the business, instead of recognizing the turnpike effect.

As for the CD-ROMs, the technological turnpike for that budding market-

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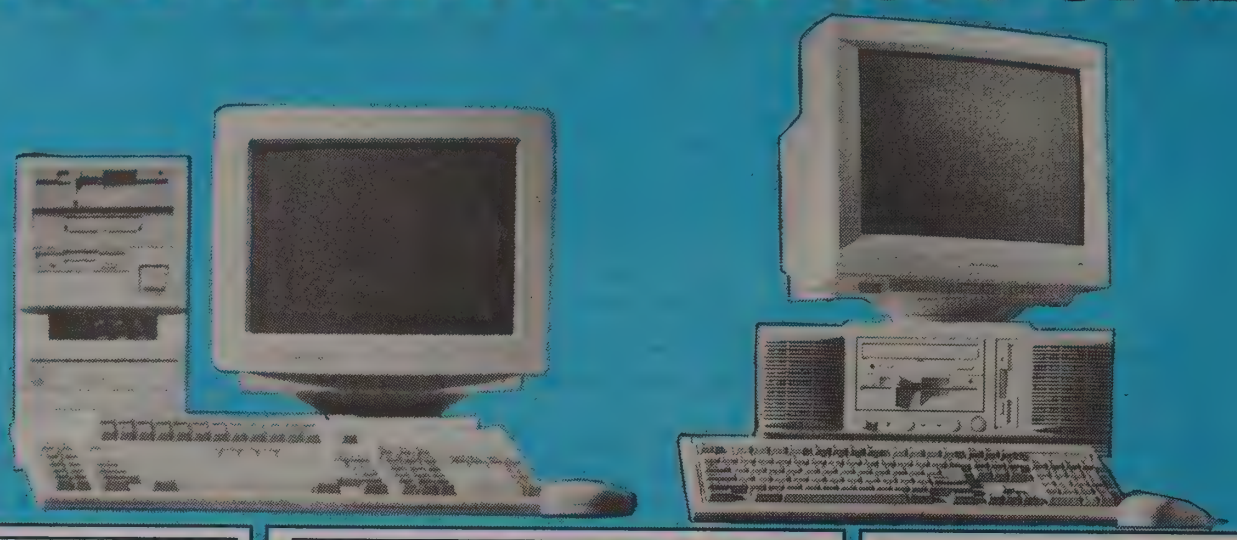

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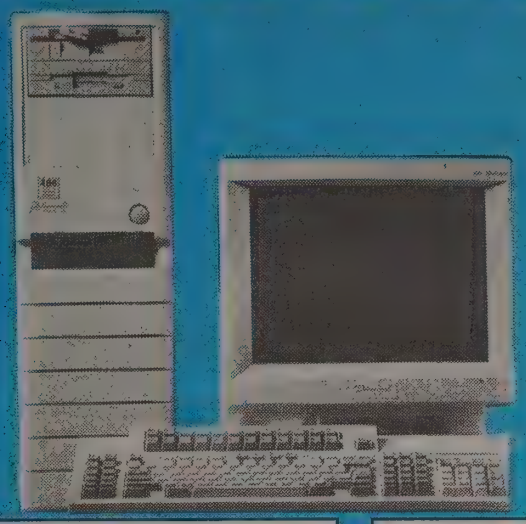

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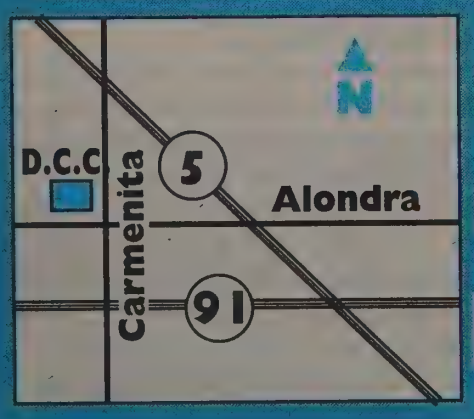

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place is not yet built; in fact, it has barely just begun. Looking ahead, it is extremely difficult to tell when it will be finished and what the impact might be. It is not easy to spot the changes that result from a new, more effective way of doing things.

But that's the challenge analysts face, and why the job's so stimulating. Personally, I've always enjoyed driving on the turnpike.

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August 1988
What DO Women Want?
By John C. Dvorak

Here at *MicroTimes*, where real women use PowerMacs, there has never been any great shortage of those willing to cite the many pathological clue deficiencies evidenced in this particular column. Some of us, for example, take exception to the suggestion that what women want is somehow different from what people want. Some wonder just exactly where A. Jesse Ivanhoe (who sent copies of this letter to other journalists as well) was getting his demographic samples—perhaps in the Barbie section of Toys-R-Us. Some become livid at Dvorak's invitation to the "gals" to comment.

As far as we know, Mr. Ivanhoe's idea never did find favor in the investment community or the great consumer marketplace, although elements of his proposal are evident in PDAs of various types. I did, however, find it disconcerting to find, at a Japanese trade show in 1990, a bevy of designer-colored handbag-sized devices clearly being marketed as "women's computers." However, the target customer appeared to be Office Ladies, and the software was strictly business.

In the years since this column appeared, thousands of women have rendered it irrelevant by going out and getting computers to use for whatever they happened to want to do. While the occasional product comes along that's explicitly designed for women (e.g. the Women's Wire online service), a clearly differentiated "women's market" has failed to develop (rather as it failed to develop in the automobile industry in a previous age).

However, with the latest round in popular computing, from home office to recreational multimedia to wireless communicators, controversy continues over many issues related to women and technology, from access to interface design. Designing games that appeal to girls is a subject that generates endless posturing and, by most accounts, very little good product.

We still tend to scratch our heads in disbelief at Mr. Ivanhoe's well-meaning vision of powderpuff computing. However, in a world where commercial nirvana has been attained by an overstuffed purple dinosaur, you never know.

—ME

Great Issues of the 21st Century.
What DO Women Want in a Personal Computer? An Immodest Proposal, Or, a Computer for Bimbos?
Would Your Mother Buy This Concept?

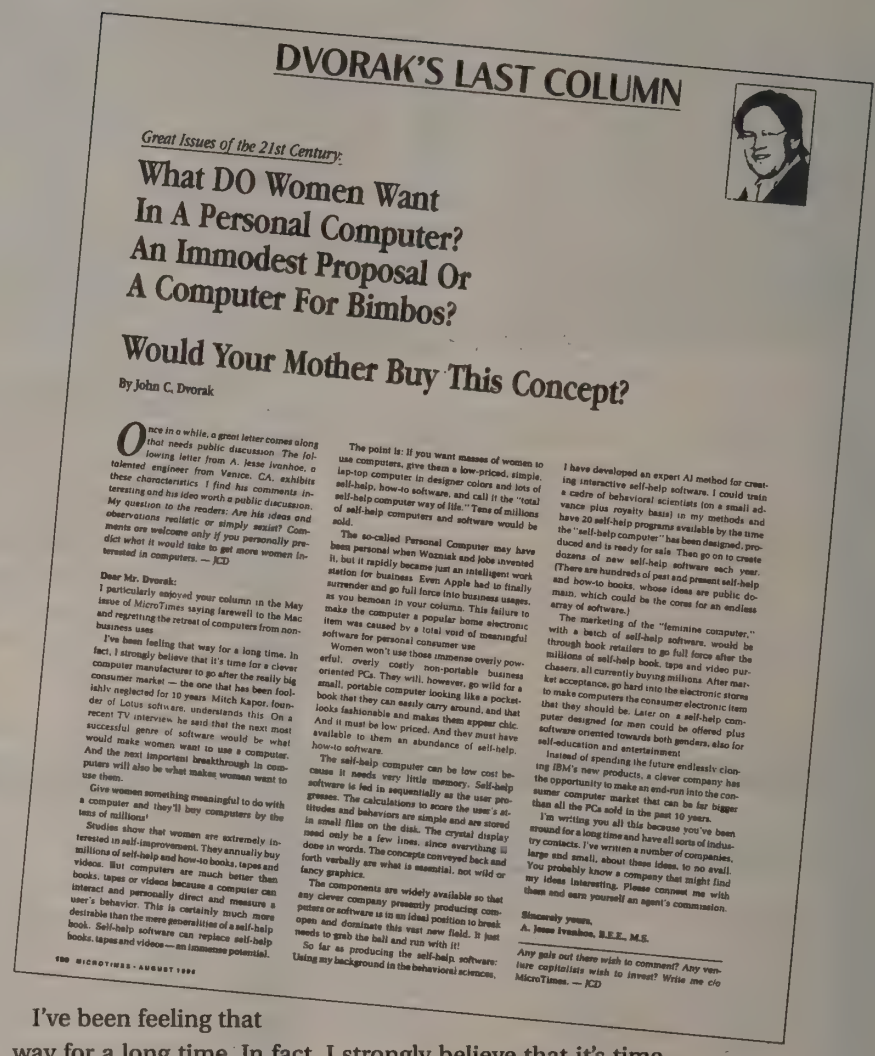
By John C. Dvorak

Once in a while, a great letter comes along that needs public discussion. The following letter from A. Jesse Ivanhoe, a talented engineer from Venice, CA, exhibits these characteristics. I find his comments interesting and his idea worth a public discussion. My question to the readers: Are his ideas and observations realistic or simply sexist? Comments are welcome only if you personally predict what it would take to get more women interested in computers.

—JCD

Dear Mr. Dvorak:

I particularly enjoyed your column in the May issue of *MicroTimes* saying farewell to the Mac and regretting the retreat of computers from non-business uses.



DVORAK'S LAST COLUMN

Great Issues of the 21st Century:

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Dear Mr. Dvorak:

I particularly enjoyed your column in the May issue of MicroTimes saying farewell to the Mac and regretting the retreat of computers from non-business uses.

I've been feeling that way for a long time. In fact, I strongly believe that it's time for a clever computer manufacturer to go after the really big consumer market — the one that has been foolishly neglected for 10 years. Mitch Kapor, founder of Lotus software, understands this. On a recent TV interview he said that the next most successful genre of software would be what would make women want to use a computer. And the next important breakthrough in computers will also be what makes women want to use them.

Give women something meaningful to do with a computer and they'll buy computers by the tens of millions!

Studies show that women are extremely interested in self-improvement. They annually buy millions of self-help and how-to books, tapes and videos. But computers are much better than books, tapes and videos because a computer can interact and personally direct and measure a user's behavior. This is certainly much more desirable than the mere generalities of a self-help book. Self-help software can replace self-help books, tapes and videos—an immense potential.

The point is: If you want masses of women to use computers, give them a low-priced, simple, lap-top computer in designer colors and lots of self-help, how-to software, and call it the "total self-help computer way of life." Tens of millions of self-help computers and software would be sold.

The so-called Personal Computer may have been personal when Wozniak and Jobs invented it, but it rapidly became just an intelligent work station for business. Even Apple had to finally surrender and go full force into business usages, as you bemoan in your column. This failure to make the computer a popular home electronic item was caused by a total void of meaningful software for personal consumer use.

Women won't use those immense, overly powerful, overly costly, non-portable, business-oriented PCs. They will, however, go wild for a small, portable computer looking like a pocketbook that they can easily carry around, and that looks fashionable and makes them appear chic. And it must

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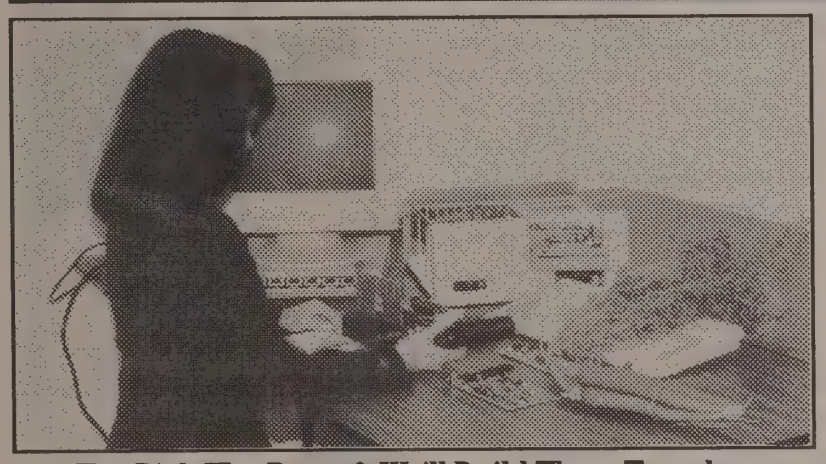

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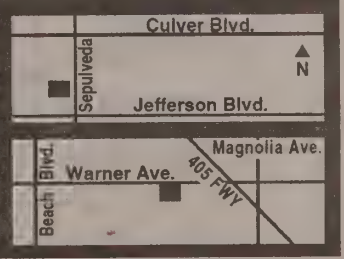

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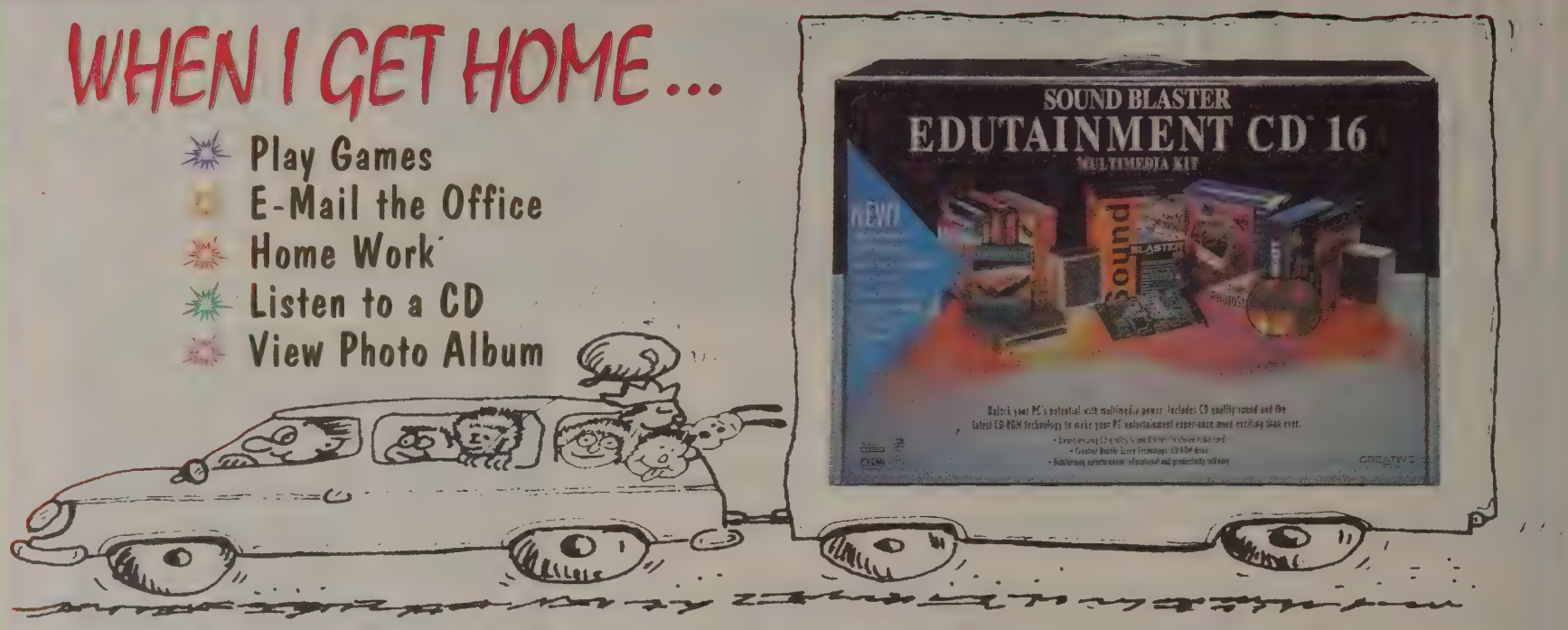

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be low priced. And they must have available to them an abundance of self-help, how-to software.

The self-help computer can be low cost because it needs very little memory. Self-help software is fed in sequentially as the user progresses. The calculations to score the user's attitudes and behaviors are simple and are stored in small files on the disk. The crystal display need only be a few lines, since everything is done in words. The concepts conveyed back and forth verbally are what is essential, not wild and fancy graphics.

The components are widely available so that any clever company presently producing computers or software is in an ideal position to break open and dominate this vast new field. It just needs to grab the ball and run with it!

So far as producing the self-help software: Using my background in the behavioral sciences, I have developed an expert AI method for creating interactive self-help software. I could train a cadre of behavioral scientists (on a small advance plus royalty basis) in my methods and have 20 self-help programs available by the time the "self-help computer" has been designed, produced, and is ready for sale. Then go on to create dozens of new self-help software programs each year. (There are hundreds of past and present self-help and how-to books, whose ideas are public domain, which could be the cores for an endless array of software.)

The marketing of the "feminine computer," with a batch of self-help software, would be through book retailers to go full force after the millions of self-help book, tape, and video purchasers, all currently buying millions. After market acceptance, go hard into the electronic stores to make computers the consumer electronics item that they should be. Later on, a self-help computer designed for men could be offered plus software oriented towards both genders, also for self-education and entertainment.

Instead of spending the future endlessly cloning IBM's new products, a clever company has the opportunity to make an end-run into the consumer computer market that can be far bigger than all the PCs sold in the past 10 years.

I'm writing you all this because you've been around for a long time and have all sorts of industry contacts. I've written a number of companies, large and small, about these ideas, to no avail. You probably know a company that might find my ideas interesting. Please connect me with them and earn yourself an agent's commission.

Sincerely yours,

A. Jesse Ivanhoe, B.E.E., M.SP—

Any gals out there wish to comment? Any venture capitalists wish to invest? Write me c/o MicroTimes—JCD

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January 1989
Fear And Loathing At COMDEX
By John Perry Barlow

Retired cattle rancher and Grateful Dead lyricist Barlow made his first appearance in computer journalism with this screed on trade-show hell and industry malaise. He subsequently went on to many memorable interviews in our pages (including Bill Gates and Steve Jobs, though not together). One such interview was with Mitch Kapor, a momentous occasion that eventually led to the creation of the Electronic Frontier Foundation.

While massive conventions are no more edifying now than they were five years ago, and the eternal conflict between the forces of creativity and the minions of soul death continues unabated, this column is perhaps the most dated of our four excerpts. It reflects a world in which Microsoft and IBM are still speaking to each other and Businessland still exists. The current IBM, while still going through troubled times, is far more nimble and lively than the moribund dinosaur portrayed here; speakers Conrades and Lowe are now long gone. Why, Apple and IBM even have some promising joint ventures these days.

As further evidence of the ever-shifting terrain, consider the cover of this issue, which features Claris CEO Bill Campbell discussing the company's impending independence from Apple. That, of course, never happened, and Campbell subsequently went to GO. GO having been essentially re-absorbed by AT&T, Campbell is now the new CEO at the wildly successful Intuit.

This issue also featured an interview with pioneer Doug Engelbart by Howard Rheingold. Engelbart, you'll be pleased to know, continues his work at the Bootstrap Institute, housed at Logitech in Fremont; Rheingold, of course, went on to many exploits, the most recent of which is the best-selling book, *The Virtual Community.*

Fear and Loathing at COMDEX

By John Perry Barlow

"We are the hollow men
We are the stuffed men
Leaning together
Headpiece filled with straw. Alas!
Our dried voices, when
We whisper together
Are quiet and meaningless
As wind in dry grass
Or rats' feet over broken glass
In our dry cellar
Shape without form, shade without colour,
Paralysed force, gesture without motion..."

—from *The Hollow Men* by T.S. Eliot

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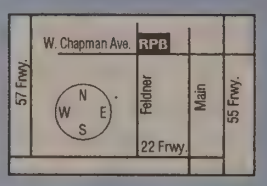

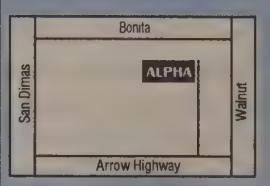

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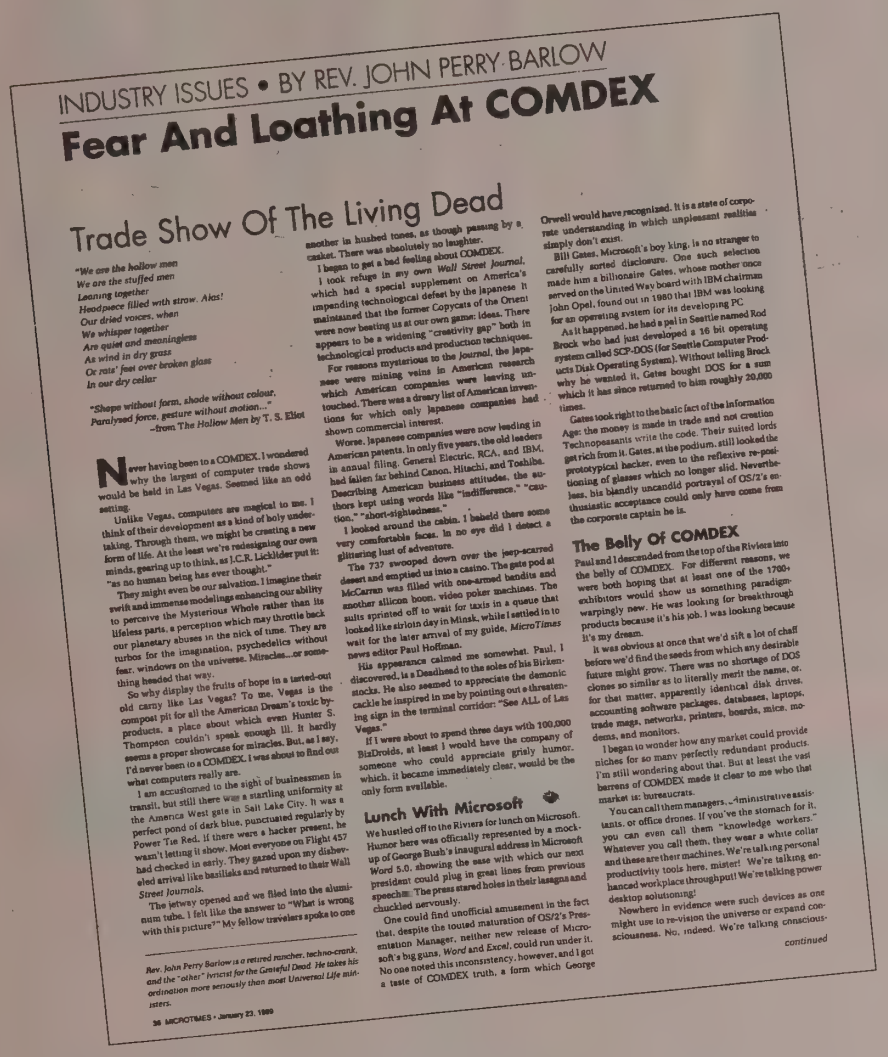

INDUSTRY ISSUES • BY REV. JOHN PERRY BARLOW

Fear And Loathing At COMDEX

Trade Show Of The Living Dead

"We are the hollow men
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Leaning together
Headpiece filled with straw. Alas!
Our dried voices, when
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Are quiet and meaningless
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I began to get a bad feeling about COMDEX.

I took refuge in my own *Wall Street Journal*, which had a special supplement on America's impending technological defeat by the Japanese. It maintained that the former Copycats of the Orient were now beating us at our own game: ideas. There appears to be a widening "creativity gap" both in technological products and production techniques.

For reasons mysterious to the *Journal*, the Japanese were mining veins in American research which American companies were leaving untouched. There was a dreary list of American inventions for which only Japanese companies had shown commercial interest.

Worse, Japanese companies were now leading in American patents. In only five years, the old leaders in annual filing, General Electric, RCA, and IBM, had fallen far behind Canon, Hitachi, and Toshiba. Describing American business attitudes, the authors kept using words like "indifference," "caution," and "short-sightedness."

I looked around the cabin. I beheld there some very comfortable faces. In no eye did I detect a glittering lust of adventure.

The 737 swooped down over the jeep-scarred desert and emptied us into a casino. The gate pod at McCarran was filled with one-armed bandits and another silicon boon, video poker machines. The suits sprinted off to wait for taxis in a queue that looked like sirloin day in Minsk, while I settled in to wait for the later arrival of my guide, *MicroTimes* news editor Paul Hoffman.

His appearance calmed me somewhat. Paul, I discovered, is a Deadhead to the soles of his Birkenstocks. He also seemed to appreciate the demonic cackle he inspired in me by pointing out a threatening sign in the terminal corridor: "See ALL of Las Vegas."

If I were about to spend three days with 100,000 BizDroids, at least I would have the company of someone who could appreciate grisly humor, which, it became immediately clear, would be the only form available.

Lunch with Microsoft

We hustled off to the Riviera for lunch on Microsoft. Humor here was officially represented by a mockup of George Bush's inaugural address in Microsoft Word 5.0, showing the ease with which our next president could plug in great lines from previous speeches. The press stared holes in their lasagna and chuckled nervously.

One could find unofficial amusement in the fact that, despite the touted maturation of OS/2's Presentation Manager, neither new release of Microsoft's big guns, Word and Excel, could run under it. No one noted this inconsistency, however, and I got a taste of COMDEX truth, a form which George Orwell would have recognized. It is a state of corporate understanding in which unpleasant realities simply don't exist.

Bill Gates, Microsoft's boy king, is no stranger to carefully sorted disclosure. One such selection made him a billionaire. Gates, whose mother once served on the United Way board with IBM chairman John Opel, found out in 1980 that IBM was looking for an operating system for its developing PC.

As it happened, he had a pal in Seattle named Rod Brock who had just developed a 16-bit operating system called SCP-DOS (for Seattle Computer Products Disk Operating System). Without telling Brock why he wanted it, Gates bought DOS for a sum which it has since returned to him roughly 20,000 times.

Gates took right to the basic fact of the Information Age: the money is made in trade and not in creation. Technopeasants write the code. Their suited lords get rich from it. Gates, at the podium, still looked the prototypical boy hacker, even to the reflexive re-positioning of glasses which no longer slid. Nevertheless, his blandly uncandid portrayal of OS/2's enthusiastic acceptance could only have come from the corporate captain he is.

The Belly of COMDEX

Paul and I descended from the top of the Riviera into the belly of COMDEX.

For different reasons, we were both hoping that at least one of the 1700+ exhibitors would show us something paradigm-warpingly new. He was looking for breakthrough products because it's his job. I was looking because it's my dream.

It was obvious at once that we'd sift a lot of chaff before we'd find the seeds from which any desirable future might grow. There was no shortage of DOS clones so similar as to literally merit the name, or, for that matter, apparently identical disk drives, accounting software packages, databases, laptops, trade mags, networks, printers, boards, mice, modems, and monitors.

I began to wonder how any market could provide niches for so many perfectly redundant products. I'm still wondering about that. But at least the vast barrens of COMDEX made it clear to me who that market is: bureaucrats.

You can call them managers, administrative assistants, or office drones. If you've the stomach for it, you can even call them "knowledge workers." Whatever you call them, they wear a white collar and these are their machines. We're talking personal productivity tools here, mister! We're talking enhanced workplace throughput! We're talking power desktop solutioning!

Nowhere in evidence were there such devices as one might use to re-vision the universe or expand consciousness. No, indeed. We're talking consciousness contraction!

Plenty of which had apparently taken place. Take the matter of gender equality. After Paul and I had tramped three or four miles of COMDEX carpeting, I muttered, "Where do they get all these *girls*?"

Paul is from Berkeley and immediately asserted his political correctness with, "Don't you mean to say '*women*'?"

I did not mean to say women, my choice of term having been guided by application. These persons, dizzyingly sexy in their short-skirted business suits, were unquestionably being *used* as girls. Or, more precisely, bait. Their employers hovered behind them, trolling the aisles for randy resellers.

Though their badges might indicate a position with Texxcom or PowerWare or whatever, many of them were obviously daylighting from such employment as "Nudes on Ice," and, in fact, I did see one of them well out of her business suit later on.

The marketers would have done better to employ these ladies in their pro-

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fessional capacity. A large number of companies were putting on small theatrical pieces. Given the talent displayed in them, one had to assume that many of the performers really did work for the company on a regular basis and were reviving thespian skills last exhibited in their Junior Class production of Oklahoma!

Apart from social benightedness, consciousness contraction had worked an intense effect on the nature of the displayed products themselves. It had squeezed most of the imagination out of what made it to this vast venue, a place where ideas should be the chief raw material.

For all the multitude of microcomputers, there are two permissible case colors: beige for the desk and flat black for the lap. You can't judge a box by its color, but it was no different within, where there were two permissible CPUs, the 80286 and the 80386.

Where was the Macintosh? Nowhere and everywhere. Actual Macintoshes were rare indeed. But an observer fresh to the scene would think that something very much like the Macintosh was the hottest news of the year. With the release of Presentation Manager, the graphical interface is at last IN. Never mind that few applications would actually run under PM, Microsoft Windows had the look.

The number of passing moments when I *thought* I was looking at the paper white windows of a Mac screen would certainly bolster Apple's legal case against Microsoft.

We were treated to many demonstrations of the ease of such thrilling new technology as clickable icons, multiple applications running in tiled windows, and other elements in the desktop metaphor. The most shameless of these was IBM's own theatrical extravaganza which breathlessly demonstrated four-year-old technology as though it were tomorrow's.

"If this is so great," I asked Paul, "Why didn't these people go for Macs a long time ago?"

"Didn't know about 'em, I guess." After all, they weren't IBM technology. And, as is commonly known, no one was ever fired for buying Big Blue.

In other words, the tyranny of job security and consensus. The proper course is the one which won't get you fired. A market as paranoid and conformist as that defined by white collar managers will not exactly propel innovation by its hunger for the new. The results of this natural timidity showed all over COMDEX.

That which was innovative was almost invariably both developmental and foreign. Like Nissei Sangyo's optical disk jukebox, a storage device about the size of a Sun CPU into which one could pack a significant percentage of the Library of Congress. Or Sony's DAT tape drive which could store 1.3 gigabytes in a package so small you could probably use body cavities for smuggling it. Or Twix's personal data microwave which, for five grand, will blast your data across town at 19,200 squeaky clean baud. This product came from those notoriously imaginative folks, the Swiss.

In search of American breakthroughs, Paul and I went to the Hall of Press Kits, a quarter acre of glossy PR. I descended immediately into datashock, stumbling behind Paul, stupid with brain-glaze. Never have I seen so many words say so little. Nor did one detect an endangering level of excitement out in the vast barrens of the exhibit halls. Aside from the dress code, the scene kept reminding me of a suburban mall a couple of days after Thanksgiving. Clutching their bulging and gaily-colored plastic bags, the COMDEX-oids had the look of shoppers in major migration. There was that same uneasy satiety, the same troubled self-absorption, the same utter joylessness.

Which made it a wonderful thing whenever we encountered anyone with the sparkle of actual interest, regardless of how morbid it might be. We fell in with a very alert young physicist from Xerox PARC one evening. He had little good to say about most of what he had seen but at least gave evidence of involvement with it.

The second night we ran into a couple of mathematicians from Autodesk whom I had barely met at the Hackers Conference. In this context, we greeted one another like separated twins. Like the physicist, they told us of The One Truly New Thing. In their description, it had a mythic quality. It would be hard to find...its location was difficult to describe. We would have to look hard.

They were right. We tramped the backwaters of the Hilton Exhibit Hall for hours before coming on it. There it was: the magic eyepiece, The Private Eye. The invention of a fellow from Cambridge named Al Becker, it provides the first heads-up display for people who are not flying supersonic killer jets. Hanging from a headset about two inches from one's left cheekbone, the tiny screen projects a virtual display into the middle distance. With it, you could probably operate a computer while doing about anything short of sleeping or making love.

The potential applications of this gizmo are limited only by the imagination, but, at the very least, it looks like a good way of getting people out of the office. Interestingly, Becker created it without any application in mind, hoping to inspire rather than meet the expectations of a market.

He had come to COMDEX in search of 100 people or companies who could imagine a truly interesting use for it. If you came up with a good idea, you would get a development prototype for next to nothing. If you didn't, you could be IBM and you still wouldn't get one.

Becker clearly had a unique sense of what he was doing. He had previously co-founded a couple of companies, Kurzweil and Cadmus, from each of which he had taken leave as soon as they became institutions. He actually seemed to like making ideas happen as much as he liked making money.

If there were more people in the computer business like Al Becker, COMDEX would be a very different experience.

Breakfast with Big Blue

Dawns my second day of COMDEX. Out on Convention Center Way, the suits are streaming eastward toward the hovering saucer of the Convention Center as though returning to the Mother Ship. This vision, combined with their regularity of gait and dispassion of expression, wedges me right into a remake of *Invasion of the Body Snatchers* before I've even had a chance to wake up.

I'm starting to feel what Dr. Thompson called "bad craziness." In the hope of restoring internal order as well as lowering my profile, I put on a tie. We are, after all, going to the IBM breakfast. Where craziness of whatever sort will be about as welcome as anti-matter.

By some miracle, we get a cab to the Tropicana. There IBM has rented for us a breakfast nook only a little larger than a football field. As soon as the guards admit the gathered hordes, a sound system the wattage of which approximates the Grateful Dead's starts lathering us with synth-pop at a decibel level guaranteed to eliminate idle chatter.

This continues through breakfast. Which is a pity since I really want to hear what the IBM employees at our table are shouting at each other. Close up, they don't seem so much like cyborgs. I want to know them as humans.

Finally the Main Event begins. The lights are doused, the "music" swells, and suddenly the room is a cat's cradle of stabbing laser beams. To my complete astonishment, staid old IBM puts on a *son et lumiére* display which would have caused a less composed acidhead to faint with joy. The only thing I've ever seen like it was Captain Eo at Disneyland. It is a triumph of imagination, and I fully expect the crowd to head for the doors as though fire had broken out.

But they don't. They're captivated. When it's over, they hoot and whistle like a bunch of adolescents. I realize suddenly that businessmen hunger for imaginative daring as much as I do...they're just afraid to invest in it as individuals. Schooled up like this, and taken by surprise, they embrace it at once.

Unfortunately, the light show will be their last taste of it for the morning. Incredibly Big Management has a batting order of power speakers ready to whip us into a frenzy over Micro Channel architecture, OS/2, and SAA.

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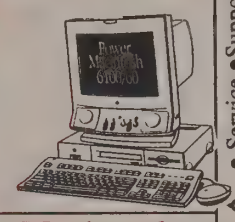

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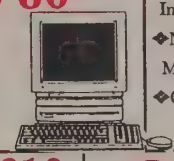

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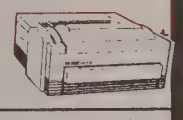

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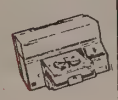

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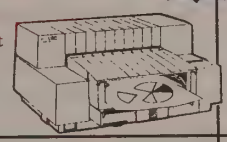

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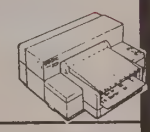

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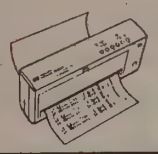

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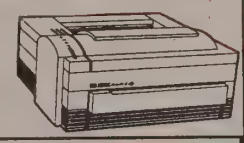

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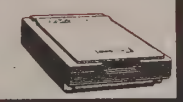

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The lead was George Conrades, IBM's V.P. of Marketing. In a fairly short speech, he used the words "strong," "stronger," or "strongest" 27 times by my rough count. These combined with the frequent use of words like "aggressive," "driven," "optimize," and "strategize," the practice of hurling consonants like darts, and an abundance of military metaphors to make it a vividly virile performance. That he pitched it to the management class was evident in the use of such magnificently bureaucratic neologisms as "solutioning."

But as far as I could tell, his style contained most of the content. The only thing he said which sounded like news to me was his characterization of IBM's mainframes as "super servers" for the PS/2 line, which, if indicative of IBM's new world-view, is one of the all-time great cases of a tail wagging a dog.

Though microcomputers still account for less than 7% of IBM's $50+ billion annual gross, the breakfast made it clear that they are taken very seriously. The folks in the Entry Systems Division, IBM's odd name for their microcomputer group, are no longer the "wild ducks of Boca Raton."

Don Estridge, the visionary computer hero who created the PC, is long dead, and in his place we have Bill Lowe, who the *Wall Street Journal* once characterized as "an old-style IBM man," noting nastily that "his wooden public image has prompted some critics to dub him the Gerald Ford of the industry."

Hey, Gerry Ford was at least funny sometimes. Bill Lowe, both in his speech and in the following press conference, most assuredly was not. Neither were the ubiquitous Bill Gates (who gave another demo of the whiz-bang new graphical user interface), David House of Intel, or Enzo Torresi of Businessland.

Not that they should bear any comic obligation. It's just that I regard the complete absence of wit to be the first and most pervasive symptom of totalitarianism. Whenever I find myself in a place which is completely barren of humor, I start looking around for evidence of thought control.

And the IBM breakfast was a wonderland of manipulated reality. Whether they were talking about the massive and enthusiastic acceptance of both OS/2 and the MicroChannel, or dismissing the threat of the Gang of Nine's EISA, or refusing to even admit the existence of the Macintosh, these were people who were able to describe a nonexistent world with as much sincerity as anyone in *1984*.

Indeed, the freebooters among them can slip seamlessly from one reality to the next without missing a beat. It was a very different world that Gates described when he addressed Macworld Boston last summer. And I would imagine that Torresi sings another tune for a breakfast laid out by, say, Compaq.

I would be less concerned if I thought their inconsistencies were conscious lies. Rather they are adapting to an environment of consciousness where such fixities as The Truth simply don't exist.

Threat or Menace?

We are very proud of our freedoms in America, and yet most of us now work in corporate environments which restrict, distort, and confine our thoughts, words and actions as rigidly as any communist regime. We exercise little choice in what we wear to work, where we live, what we say out loud, and finally, by habit, what we think to be true.

But wait, you'll protest, they'll shoot you in Russia if you don't go along. Naaah. They pretty much quit that years ago. The consequences of free expression in the Soviet Union are much the same as they are here: disenfranchisement and loss of economic security.

Bureaucracy is bureaucracy is bureaucracy and it doesn't make a damned bit of difference what sort of ideology it adorns itself with. It is always a machine in which people are interchangeable parts and must behave accordingly. Small computers, rather than restoring individual creation, have become corporate "productivity tools," as much the means of dominating both individuals and information as were mainframes.

COMDEX gave me a vision of the future which would make the movie Brazil look like a day at the beach. I saw an economy based on bureaucracy, every mother's son a "knowledge worker."

Most manufacturing will be devoted to electronically automating bureaucratic functions. The mountains of meaningless data will require desktop storage devices with capacities measured in terabytes. All real creation will cease and Americans would devote themselves to an endless loop of office supply.

Everyone will wear a blue suit, stare all day into a CRT, give occasional power speeches to mask his cultural emasculation, suppress whatever errant ideas break through, live in Marriotts and secretly know that he is doing nothing useful at all. Meaning will be replaced entirely by job security. Production will be measured by data shuffled. No one will have any idea what the truth might be about anything. And laughter will get you fired.

COMDEX made me think that such a world might, like IBM, be "Right for Today, Ready for Tomorrow."

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June 1992
Matthew's Farewell To The Amiga

We could always be sure of a storm of protest if anybody spoke ill of the Amiga in our pages. From the beginning, the community of Amiga users has made Mac zealots look anemic in their devotion to the machine.

As we go to press, Commodore's assets are being liquidated, and Amiga users, their passion unabated, hope for a benign buyout of Amiga technology by someone who can affort to give it the resources it's always deserved.

No doubt many books will be written on the downfall of Commodore, which, as one writer bitterly observed, once owned the personal computer industry with the C64. Blame allocation will no doubt be lavish and varied. What's beyond doubt is the fact that you can have great technology and customers whose loyalty most of the industry would kill for, and it's not enough.

Matthew's Farewell to the Amiga
A Great Machine in Search of a Great Company

By Matthew Leeds

Those of you who read the entire magazine may have noticed that in the last year or two I've been writing more than just this column, and that most of the other writing has not been about the Amiga. Those of you who only read this column, bless you.

This will be my last regular Amiga column. While I've written my columns in the past for my readers, this one's for me. I hope you'll read it.

I'll still be contributing to *MicroTimes*, writing reviews, articles on multimedia, video, new technologies, and other stuff that catches my interest. But after seven years of nonstop coverage of the Amiga (the longest continuous coverage outside of *AmigaWorld*), it's time for me to move on.

The Unfulfilled Promise

I started writing about the Amiga because it was the most exciting computer available. Priced so that anyone could buy one, with a true multitasking operating system, incredible animation capabilities, lots of color, great sound, and other features considered radical in 1985 when it was released. Over the years I felt privileged to write about new products, new developments, and the future of the Amiga.

I switched careers, from photography to software, hoping to do my part to make the Amiga a success. It was a heady time, traveling across the country to

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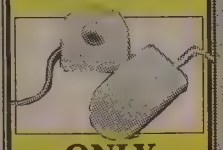

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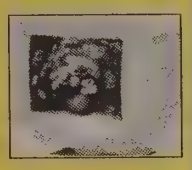

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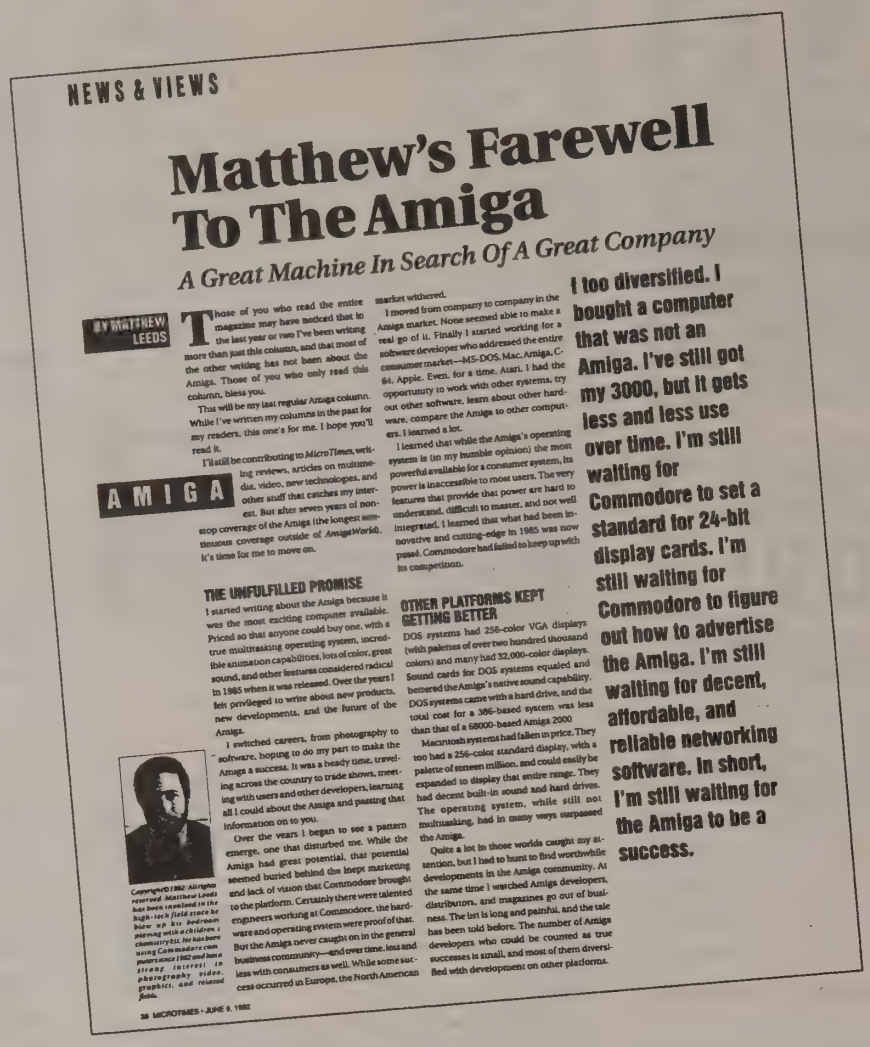

NEWS & VIEWS

Matthew's Farewell To The Amiga

A Great Machine In Search Of A Great Company

BY MATTHEW LEEDS

AMIGA

Those of you who read the entire magazine may have noticed that in the last year or two I've been writing more than just this column, and that most of the other writing has not been about the Amiga. Those of you who only read this column, bless you.

This will be my last regular Amiga column. While I've written my columns in the past for my readers, this one's for me. I hope you'll read it.

I'll still be contributing to *MicroTimes*, writing reviews, articles on multimedia, video, new technologies, and other stuff that catches my interest. But after seven years of non-stop coverage of the Amiga (the longest sustained coverage outside of *AmigaWorld*), it's time for me to move on.

THE UNFULFILLED PROMISE

I started writing about the Amiga because it was the most exciting computer available. Priced so that anyone could buy one, with a true multitasking operating system, incredible animation capabilities, lots of color, great sound, and other features considered radical in 1985 when it was released. Over the years I felt privileged to write about new products, new developments, and the future of the Amiga.

I switched careers, from photography to software, hoping to do my part to make the Amiga a success. It was a heady time, traveling across the country to trade shows, meeting with users and other developers, learning all I could about the Amiga and passing that information on to you.

Over the years I began to see a pattern emerge, one that disturbed me. While the Amiga had great potential, that potential seemed buried behind the inept marketing and lack of vision that Commodore brought to the platform. Certainly there were talented engineers working at Commodore, the hardware and operating system were proof of that. But the Amiga never caught on in the general business community—and over time, less and less with consumers as well. While some success occurred in Europe, the North American market withered.

I moved from company to company in the Amiga market. None seemed able to make a real go of it. Finally I started working for a software developer who addressed the entire consumer market—MS-DOS, Mac, Amiga, C-64, Apple. Even, for a time, Atari. I had the opportunity to work with other systems, try out other software, learn about other hardware, compare the Amiga to other computers. I learned a lot.

I learned that while the Amiga's operating system is (in my humble opinion) the most powerful available for a consumer system, its power is inaccessible to most users. The very features that provide that power are hard to understand, difficult to master, and not well integrated. I learned that what had been innovative and cutting-edge in 1985 was now passé. Commodore had failed to keep up with its competition.

OTHER PLATFORMS KEPT GETTING BETTER

DOS systems had 256-color VGA displays (with palettes of over two hundred thousand colors) and many had 32,000-color displays. Sound cards for DOS systems equaled and bettered the Amiga's native sound capability. DOS systems came with a hard drive, and the total cost for a 386-based system was less than that of a 68000-based Amiga 2000.

Macintosh systems had fallen in price. They too had a 256-color standard display, with a palette of sixteen million, and could easily be expanded to display that entire range. They had decent built-in sound and hard drives. The operating system, while still not multitasking, had in many ways surpassed the Amiga.

Quite a lot in those worlds caught my attention, but I had to hunt to find worthwhile developments in the Amiga community. At the same time I watched Amiga developers, distributors, and magazines go out of business. The list is long and painful, and the tale has been told before. The number of Amiga developers who could be counted as true successes is small, and most of them diversified with development on other platforms.

I too diversified. I bought a computer that was not an Amiga. I've still got my 3000, but it gets less and less use over time. I'm still waiting for Commodore to set a standard for 24-bit display cards. I'm still waiting for Commodore to figure out how to advertise the Amiga. I'm still waiting for decent, affordable, and reliable networking software. In short, I'm still waiting for the Amiga to be a success.

Copyright© 1992 All rights reserved Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with explosives chemistry kit. He has been using Commodore computers since 1987 and has a strong interest in photography, video, graphics, and related fields.

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And so I too diversified. I bought a computer that was not an Amiga. I've still got my 3000, but it gets less and less use over time. I'm still waiting for Commodore to set a standard for 24-bit display cards. I would not consider buying one unless I felt confident that most of the future software would run on it. I'm still waiting for Commodore to figure out how to advertise the Amiga; perhaps if they do, the installed base will expand sufficiently to encourage more broad-based software development. I'm still waiting for decent, affordable, and reliable networking software for the Amiga, so that it has a chance in the business community. In short, I'm still waiting for the Amiga to be a success.

Thanks and Anti-Thanks

I lay the blame for the Amiga's lack of success directly at Commodore's door. Perhaps revolving door would be a more apt description. Since I've been covering the Amiga, the long lists of presidents, vice presidents, public relations firms, advertising firms, and assorted marketing flacks that have passed through Commodore is impressive and depressing. The market positioning for the Amiga product line has changed more often than a one-year-old's diaper. The pricing on Amigas has changed more than the hemlines on skirts, and in as many directions. Commodore, get a grip.

There are a lot of people I've got to thank for helping me with my writing career. Roger Tierce and Malcolm Lowe and the rest of the gang from the San Francisco Commodore User's Group for taking me under their collective wing when I was just starting, and for that great run we made at promoting Commodore computers, the West Coast Commodore Association—the first West Coast Commodore-specific trade show promoters. Guy Wright for letting me write for *AmigaWorld*, and Bob Kinney for putting me on staff for a year at *Commodore Magazine*, may it rest in peace. Mary Eisenhart, my editor here, for letting a brash young know-it-all talk her into a regular column for Commodore computers, and for giving me virtual *carte blanche* as to content. All the guys that put the First Amiga User's Group together, and brought the spirit and excitement of those early years to so many. The engineers at Commodore who still haven't given up. The developers who created some of the most innovative hardware and software (here's hoping you all get the success you so richly deserve).

The Amiga has made an impact in the video market. A great portion of that success goes to one company, NewTek. For those of you interested in things Toasted, I recommend the *Video Toaster User* magazine, published by Avid Publications. They cover more than just Toaster-related products and do a great job on video and animation as well. I also recommend the *AmigaWorld Special Issue on Video & Animation*. While *AmigaWorld* often misses the mark, this issue is right on the money.

Finally I'd like to thank you for being a great audience for this column over the years. I hope that you've gotten as much enjoyment out of it as I have. ■

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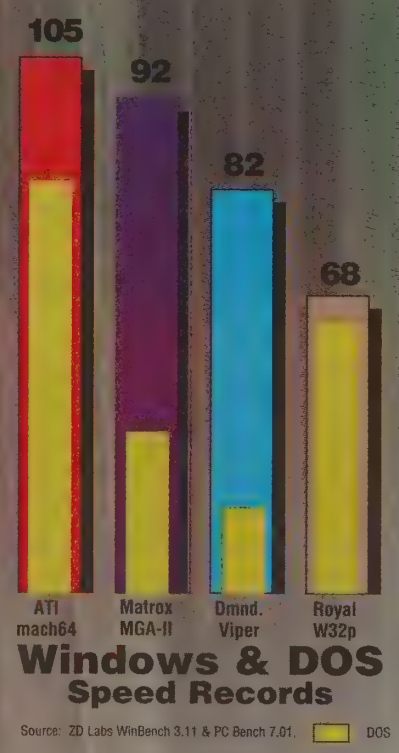

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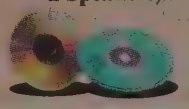

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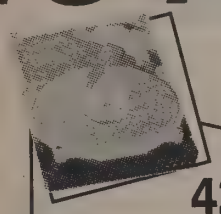

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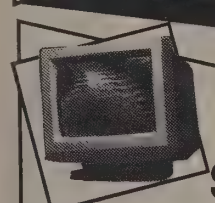

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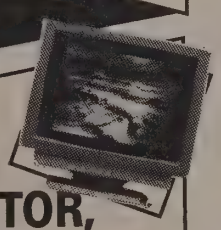

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continued from page 14

COMPUTER STOCKS FALL UNDER WEIGHT OF SELL ORDERS

Continuing the trend that started in March, computing stocks fell victim to sell orders from a jittery investing public during the month of April. This profit-taking took its toll on the thirty-two stocks in the MicroTimes Stock Index, as it backtracked a hefty 4.89% before coming to rest at 4639.86—a six-month low. Our index paled next to such indicators as the S&P 500, which gained .58% to close at 450.91.

Turning to stocks in the accompanying table:

Digital Equipment's stock sank like a stone last month, falling $8.25 a share, or 27.7%, en route to a close of $21.50. Shareholders of the company filed two lawsuits in federal court alleging that they were misled by the company. The suits came on the heels of DEC's disappointing third-quarter earnings report: the company posted a loss of $183.3 million and said it will cut another 7,000 jobs, or about 8% of its total workforce, over the next three months. Digital was the largest casualty on a percentage-lost basis last month.

Lotus was the largest dollar-loser last month, as it fell $8.63 a share to $63.38. Shares of the Cambridge, MA-based software concern toppled after it recorded slower-than-expected first-quarter sales growth. Informix surrendered $4.25 a share, or 20.2%, to close at $21 a share. The company's first-quarter earnings rose to 19 cents a share from 17 cents in the year-ago period. Analysts, however, were expecting it to post earnings of 20 cents a share.

Dell's share price contracted 18% before ending at $22.75. The stock toppled after Dell said it faces "material" trading losses in the derivatives market in the latest quarter. In Canada, Northern Telecom sprang forward 7.2% to conclude matters at $29.88 a share. The Toronto-based concern recently posted a first-quarter earnings report card in which net income rose 16% to $88 million, sales gained 3% to $2 billion, and NT showed an unexpected operating profit of $52 million vs. an expected loss. ■

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 04/05/94	CLOSING PRICE 04/29/94	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE											
OTC	Adobe		ADBE	26.25	25.50	–0.75	–2.86	21	0.20	0.78	37.00	16.25
OTC	Aldus		ALDC	29.00	28.38	–0.63	–2.16	40	0.00	0.00	34.50	13.50
OTC	Autodesk		ACAD	58.13	54.00	–4.13	–7.10	22	0.48	0.89	61.75	37.00
OTC	Borland	(L)	BORL	13.69	12.00	–1.69	–12.33	22	0.00	0.00	27.25	11.38
OTC	Informix		IFMX	21.00	16.75	–4.25	–20.24	20	0.00	0.00	27.25	15.75
OTC	Lotus		LOTS	72.00	63.38	–8.63	–11.98	46	0.00	0.00	86.50	25.50
OTC	Microsoft		MSFT	87.75	92.13	4.38	4.99	26	0.00	0.00	98.00	70.38
OTC	Novell	(L)	NOVL	18.38	18.63	0.25	1.36	–	0.00	0.00	33.50	15.38
OTC	Oracle		ORCL	33.31	29.88	–3.44	–10.32	36	0.00	0.00	37.75	17.69
OTC	Software Publishing	(L)	SPCO	7.13	5.25	–1.88	–26.32	–	0.00	0.00	8.63	4.75
OTC	Symantec		SYMC	16.88	15.88	–1.00	–5.93	–	0.00	0.00	20.50	10.88
	HARDWARE											
OTC	Apple		AAPL	33.50	30.25	–3.25	–9.70	–	0.48	1.59	59.13	22.00
OTC	AST Research		ASTA	21.63	18.75	–2.88	–13.29	–	0.00	0.00	33.00	13.50
NYS	Commodore	(L)	CBU	0.75	0.88	0.13	16.67	–	0.00	0.00	4.63	0.50
NYS	Compaq		CPQ	100.88	109.25	8.38	8.30	17	0.00	0.00	112.25	43.13
NYS	Digital Equipment	(L)	DEC	29.75	21.50	–8.25	–27.73	–	0.00	0.00	48.25	18.25
OTC	Dell		DELL	27.75	22.75	–5.00	–18.02	–	0.00	0.00	34.38	13.50
NYS	Hewlett–Packard		HWP	82.25	78.75	–3.50	–4.26	16	1.00	1.27	93.63	64.38
NYS	IBM		IBM	53.38	57.13	3.75	7.03	–	1.00	1.75	60.00	40.63
NYS	Silicon Graphics		SGI	23.63	24.25	0.63	2.65	28	0.00	0.00	26.88	16.00
OTC	Sun Microsystems	(L)	SUNW	22.25	22.38	0.13	0.56	12	0.00	0.00	32.63	20.88
NYS	Xerox	(H)	XRX	97.50	98.88	1.38	1.41	–	3.00	3.03	104.88	69.88
NYS	Tandy		TAN	36.50	33.13	–3.38	–9.25	14	0.60	1.81	50.75	28.13
	CPU'S											
NYS	Advanced Micro Devices		AMD	30.25	26.00	–4.25	–14.05	10	0.00	0.00	32.75	16.75
OTC	Intel		INTC	68.75	61.69	–7.06	–10.27	11	0.20	0.32	74.50	47.50
NYS	LSI Logic	(H)	LSI	20.50	22.25	1.75	8.54	18	0.00	0.00	23.13	11.25
NYS	Motorola		MOT	52.31	44.63	–7.69	–14.70	23	0.28	0.63	54.88	36.19
	COMMUNICATIONS											
NYS	AT&T	(L)	T	52.00	51.25	–0.75	–1.44	17	1.32	2.58	65.00	49.50
NYS	BellSouth Corp.		BLS	57.00	60.63	3.63	6.36	25	2.76	4.55	63.88	50.63
OTC	MCI	(L)	MCIC	23.13	22.88	–0.25	–1.08	20	0.04	0.17	29.88	21.38
NYS	Northern Telecom		NT	27.88	29.88	2.00	7.17	–	0.36	1.21	38.63	21.38
NYS	Pacific Telesis		PAC	31.38	31.88	0.50	1.59	–	2.16	6.78	34.50	26.19

Note: Motorola completed a 2–for–1 stock split on 4/18/94.

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	12
DECLINES	20
UNCHANGED	0
NEW HIGHS	2
NEW LOWS	8

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Compaq	$ 8.38
LARGEST DOLLAR LOSER	Lotus	$ –8.63
LARGEST PERCENTAGE GAINER	Commodore	16.67 %
LARGEST PERCENTAGE LOSER	Digital Equipment	–27.73 %

	CLOSE 04/05/94	CLOSE 04/29/94	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD
MICROTIMES STOCK INDEX	4878.26	4639.86	–238.40	–4.89
DOW JONES INDUSTRIAL AVERAGE	3675.41	3668.31	–7.10	–0.19
STANDARD & POOR'S 500 INDEX	448.29	450.91	2.62	0.58
N.Y.S.E. COMPOSITE	248.41	249.13	0.72	0.29
NASDAQ COMPOSITE	750.95	731.69	–19.26	–2.56

CLOSING QUOTES FOR GRAPH:

DATE	MICRO TIMES	DOW JONES
09/17/93	4212.67	3613.25
10/18/93	4473.13	3642.31
12/17/93	4644.25	3751.57
01/07/94	4866.50	3820.77
02/04/94	4728.74	3871.42
03/04/94	5081.75	3832.30
04/05/94	4878.26	3675.41
04/29/94	4639.86	3668.31

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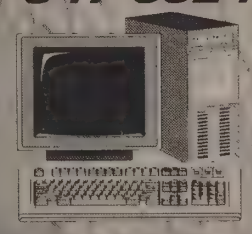

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continued from page 22

or better color monitor. Most machines allow this, but there are still several things to check out before you buy. I always prefer a unit that lets you easily switch back and forth between the built-in display and the external monitor. Some of the machines accomplish this so easily that you merely plug in the monitor and it works as the primary display. On other models, you have to make alterations within a setup program.

Some portables will allow you to choose to see the display through either the built-in display, an external monitor, or both. I connect a great monitor and keyboard, and then the computer itself serves pretty much as a black box. I turn on the machine and after that have little to do with it until I finish my work for the day.

Remember that the two interfaces you have with a computer are what you see and what you feel. By having a choice over these two components, you can customize your interface.

Another thing I like to check out is whether it is possible to close the cover of the machine when it is running. I like to do this when I am using the external monitor and keyboard. Some computers will beep incessantly if you close the cover. Others will automatically enter into a sleep mode, which effectively means you can't close the cover and use the computer. All other things being equal, I prefer models that are designed to let you do this. This is something you will normally not discover until you have laid out your cash and taken the machine home. Careful shopping may help you avoid pitfalls.

Horror Story Avoidance For The Long Term

A final, and perhaps the most important, feature to check out is the after-warranty service policy. It is certainly important to know the details of the warranty: just what is covered and for how long—do you pay freight charges or do they come to your home, and the like. But few buyers check out what happens to your machine after the warranty period is over.

Not long ago, I had a computer with a relatively minor problem. The manufacturer asked if the machine was in warranty. When they heard the covered period had ended, they said that a diagnosis would cost $75 and that probably it would be necessary to change the motherboard. That cost nearly $800. There was no provision for a simple repair.

What you have to remember is that with a desktop machine, service is not really a problem, as you can swap out components and substitute parts made by another vendor. In this way, you can keep upgrading your computer.

But in the case of portables, parts are generally not generic. That means if a switch breaks, you must get it from the manufacturer. If your battery pack wears out, you will be required to go back to the people who made the machine. If a latch breaks, there is only one place to have it fixed.

So before you buy, be sure that you are not simply buying the least expensive machine. It is important to know that the manufacturer of your machine will be in business several years down the road and that they will still be willing to service your computer for a reasonable charge. Some vendors will do anything to sell a new machine, but don't have much interest in maintaining machines already in the field. Many users have had to literally throw away portables with relatively minor problems because they simply cannot get them serviced reasonably.

All of these criteria can often be met by machines that come from manufacturers who sell directly to the public. Several of these firms are actually my first choice when it comes to recommending a portable. They have prospered by giving excellent service in and out of warranty and have set things up so you can often get better follow-up advice than you can for computers purchased through retail chains. Before you buy any machine, I would recommend that you find the phone number that you will call for service. If you have trouble getting through before you buy, you can be sure that you will have trouble after you have given them your money.

I recently waited over a week to get in touch with a manufacturer through the 800 number they listed in their literature. Nobody knew who was really in charge of service for the model I had and nobody seemed to care. To make matters worse, Microsoft would not deal with me, as they said the manufacturer had a proprietary version of both Windows and DOS and that therefore I would have to deal directly with them.

Careful attention to the points I have raised in this article should save you from lots of headaches down the road. Portables are becoming an increasingly important segment of the computer market, but buyers need to be educated in the pitfalls that may appear.

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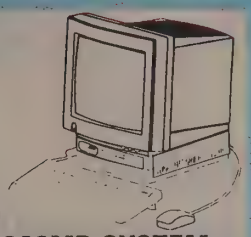
486SX 33MHz



PRESARIO 433-200 200MB SYSTEM

Intel 486SX-33MHz CPU • 200MB Hard Drive
4MB RAM expandable to 20MB •3.5" 1.44 Floppy Drive
Two ISA expansion slots • Voice Mail Fax/Modem • Mouse
Built-in SVGA Display • MS DOS • MS Windows MS Works

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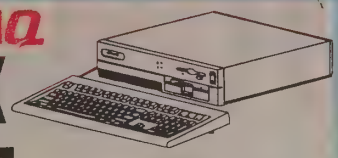
486DX 33MHz



PROLINEA 4/33 240 240MB SVGA SYSTEM

80486DX 33MHz CPU • 240MB Hard Drive
4MB RAM Expandable to 32MB • SVGA Card
3.5" 1.44MB/5.25" 1.2MB Floppy Drives • DOS 5.0
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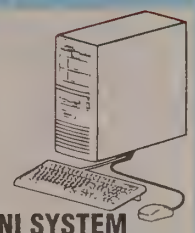
486DX2 50MHz



PRESARIO 850 270MB MINI SYSTEM

486DX2-50MHz CPU • 270MB Hard Drive • 4MB RAM expandable to 56MB • Dual Floppy Drive • Local BUS video graphics • 5 ISA expansion slots • 5 drive bays • Intergrated fax/modem • Supports Intel OverDrive processor(486DX2'66), as well as future OverDrive processor with Pentium technology **Preinstalled software:** MS DOS • TabWorks • MS Windows 3.1 • MS Works • Delrina WinFax Lite • Prodigy • America On-Line • Microsoft Entertainment Pack Symantec Games Pack
Monitor Not Included

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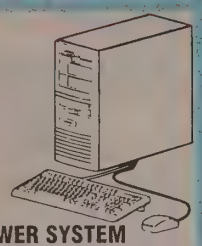
COMPAQ

486DX2 66MHz



PRESARIO 866 340MB MINI TOWER SYSTEM

486DX2-66MHz CPU • 340MB Hard Drive • 4MB RAM expandable to 56MB • Dual Floppy DriveLocal BUS video graphics • 5 ISA expansion slots • Mouse • 5 drive bays • Internal fax/modem Supports Intel OverDrive processor with Pentium technology Preinstalled software: MS DOS • TabWorks MS Windows Workgroups Microsoft Works Delrina WinFax Lite Prodigy • America On-Line Microsoft Entertainment Pack Symantec Games Pack • **Monitor not included**

$1997

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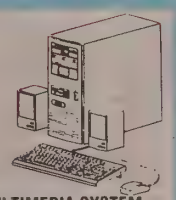
486DX2 50MHz



PRESARIO 850 W/CD ROM 340MB MINI MULTIMEDIA SYSTEM

486DX2-50MHz CPU • 340MB Hard Drive • 4MB RAM expandable to 56MB • Dual Floppy Drive • CD ROM drive (Dual-Speed) • SoundBlaster 16 Audio Board • External Speakers and Microphone • Local BUS video graphics • 4 ISA expansion slots • 5 drive bays • Intergrated fax/modem • Supports Intel OverDrive processor(486DX2/66), as well as future OverDrive processor with Pentium technology • **Preinstalled software:** MS DOS • TabWorks • MS Windows 3.1 • COMPAC Mouse • Microsoft Works • CD ROM titles • Quicken for Windows 2.0 • Delrina WinFax Lite • Prodigy • America On-Line • Microsoft Entertainment Pack • Symantec Games Pack • **Monitor Not Included**

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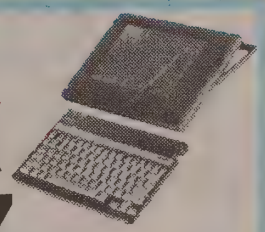
486DX 33MHz



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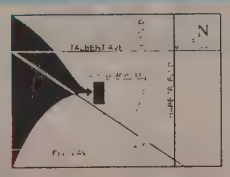

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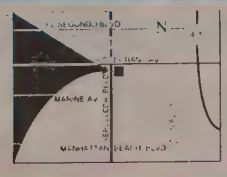

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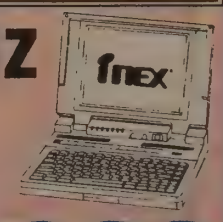

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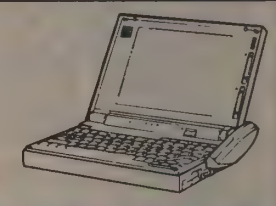

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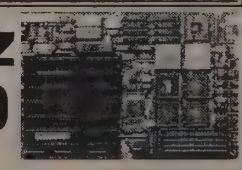

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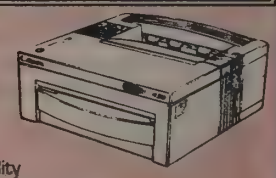

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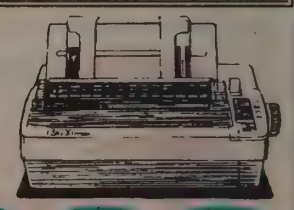

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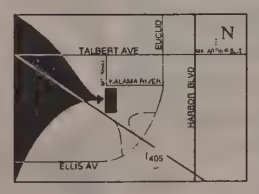

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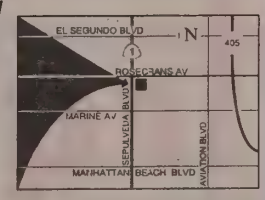

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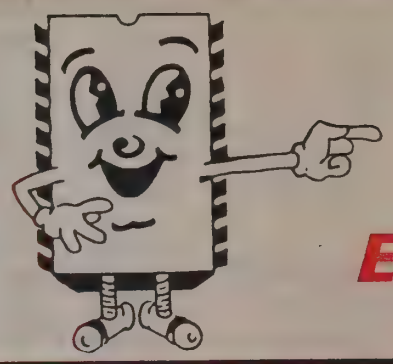

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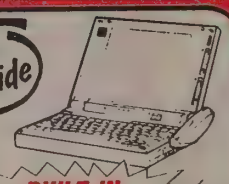

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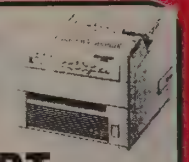

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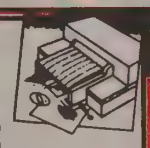

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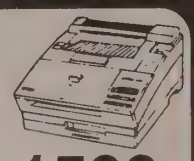

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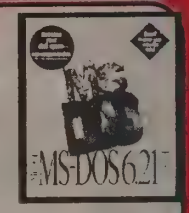

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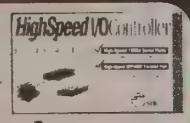

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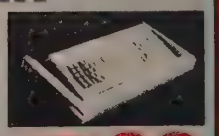

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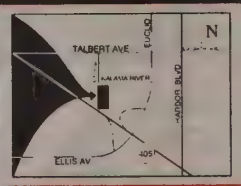

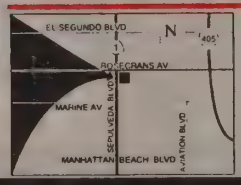

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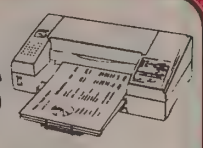

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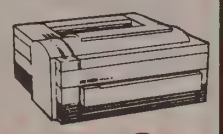

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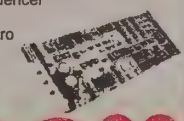

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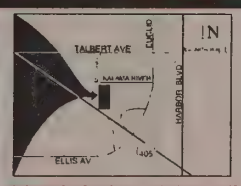

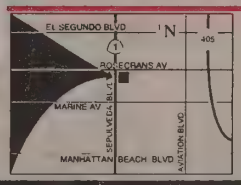

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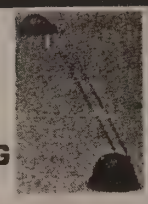

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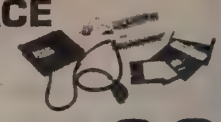

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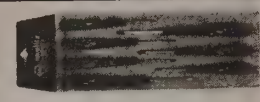

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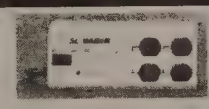

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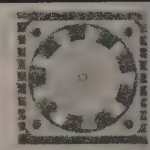

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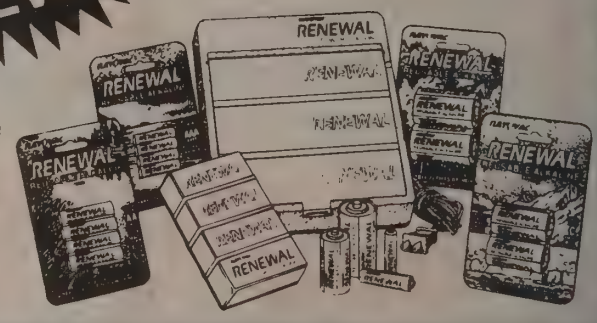

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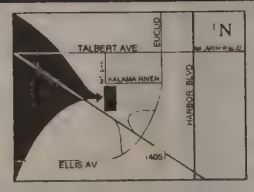

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Product Spotlight

UPDATES

• **ACI** released **4D Insider 2.0**, an upgrade to its development tool for **4th Dimension**. 4D Insider, an information cross-referencing tool, provides a complete visual dictionary of 4th Dimension databases. ACI US, Inc., 20883 Stevens Creek Blvd., Cupertino, CA 95014. (408)252-4444. AppleLink D4444.

• **Aldus Corp.** introduced **Persuasion 3.0 for the Macintosh**, a major upgrade to its cross-platform software application for creating and managing slides, overheads, and computer-based on-screen presentations. Registered users of Persuasion 2.12 or earlier can obtain an upgrade for $150. Aldus Customer Services, 1-800-685-3617.

• **Caere** released **OmniPage Professional 5.0**, a new generation of its optical character recognition software for Windows. Upgrade prices for current users of OmniPage Professional, OmniPage, or OmniPage Direct to OmniPage Professional 5.0 are $129, $179, and $299, respectively. Caere Corp., 100 Cooper Court, Los Gatos, CA 95030. 1-800-535-SCAN.

• **Digital Tools** released **AutoPLAN II v2.0**, the latest release of its project management software specifically designed for the UNIX platform. Version 2.0 is presently available on Sun SPARC and HP 9000/Series 700/800, and will soon be ported to other platforms. Digital Tools, Inc., 18900 Stevens Creek Blvd., Cupertino, CA 95014. (408)366-6920. Email: info@digit.com .

• **Island Graphics** announced the release of **IslandTrapper 2.0**, which streamlines pre-press workflow by enabling batch trapping input from other sources, the first of which is QuarkXPress. Island Graphics Corp., 4000 Civic Center Dr., San Rafael, CA 94903. (415)491-1000.

• **Software Solutions** released **Territory Manager 1.5**, its Macintosh software product for the outside sales rep. Software Solutions, Inc., 6404 E. Oak St., Evansville, IN 47715. (812)477-3181.

• **SuperMac Technology** announced a huge step forward with its new **ProofPositive 2.0** dye sublimation printer. SuperMac Technology, Inc., 215 Moffett Dr., Sunnyvale, CA 94089. (408)541-6100.

• **WordPerfect** announced **WordPerfect 5.1+ for DOS**, an upgrade to WordPerfect 5.1 for DOS targeted at users of lower-end PCs who want new functionality but do not have the hardware required to run the latest versions of other word processors. The company also announced it would lower the upgrade price to $49.95. WordPerfect Corp., 1555 N. Technology Way, Orem, UT 84057. (801)225-5000.

New Products

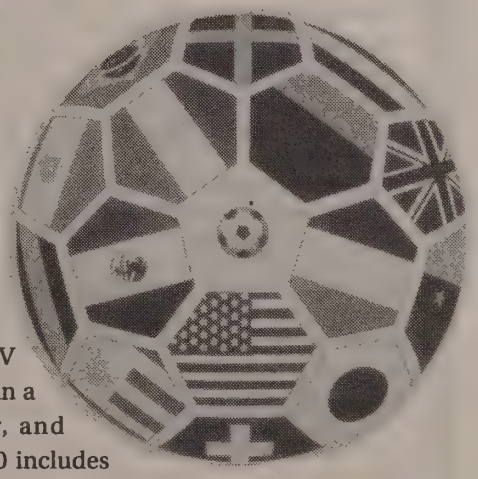
Notebooks

M.O.S. Legacy Notebook

Early this year, Mobile Office Systems launched a fully modular and upgradable notebook. The Legacy Notebook has removable components including the CPU, hard drive, trackball, keyboard, and RAM card. Every component is upgradable to protect from obsoleteness, and there will soon be a Pentium upgrade available. The LCD display is also interchangeable between mono and color (TFT or STN Dual Scan). M.O.S. also offers a wide range of optional function modules for the Legacy, like a PCMCIA, scanner, LAN, SCSI adapter, fax/modems, a second serial port, multimedia, and a data security box. (List price for the Legacy 486DX2-66 is $1699) Mobile Office Systems, 1574-3 N. Batavia St., Orange, CA 92667. (714)974-5134.

Wedge ShowBook 4E

Offering power and flexibility, the Wedge ShowBook 4E notebook supports an array of CPU, including the latest 100MHz DX4. Other features include a 3 2-bit Local Bus with 1MB video RAM, PowerBook-style trackball with palm rest, removable hard drive, two battery compartments which allows you to "hot swap" the battery units without turning the notebook off, a built-in Sound Blaster compatible Audio System with microphone and speaker, and PCMCIA Type IV slot. The ShowBook 4E is available in a Monochrome, Dual Scan Color, and Active Matrix Color version. ($3740 includes 250MB hard drive, 4MB of RAM, 1MB memory for video, 1.44MB floppy drive, and active matrix color display) Wedge Technology, Inc., 1657 McCandless Dr., Milpitas, CA 95035. (408)263-9888.



Accessory

World Soccer Ball Mouse Pad

In honor of the World Cup games being held in the US this year, Computer Expressions has come out with the World Soccer Ball mouse pad. The round

Pumped Pumped Pumped

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540MB	IDE	$365	SCSI	$499
1GB	IDE	$749	SCSI	$879

Choose your Monitor

Viewsonic,CTX
Opti-Quest, KFC

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pad looks like a soccer ball, with pentagon- and hexagon-shaped pieces depicting the flags of fifteen of the World Cup contenders, including Mexico, Italy, Germany, Ireland, Cameroon, Spain, and the United States. The pad even has realistic stitching lines. The fifty-two World Cup games are being held in nine American cities for the first time ever this summer, and this is the first time the US has qualified to compete in forty years. Computer Expressions also makes mouse pads with M.C. Escher, the Grateful Dead, and *Gone With the Wind* designs, among others. ($4.50, minimum order of thirty-six) Computer Expressions, Inc., 4200 Mitchell St., Philadelphia, PA 19128-3593. (215)487-7700.

Reviews

Game Reviews

Darksun: Shattered Lands

Publisher: Strategic Simulations, Inc.
For: IBM 386, 2MB of RAM, VGA, Adlib/SoundBlaster/Roland/ProAudio Spectrum
List Price: $55.73
Reviewed By: Fred Haslam

Darksun is a grand role-playing game from SSI using the AD&D game system. While I am not partial to the Dungeons and Dragons RPG, I have to admit that Darksun has created a fascinating and consistent world and does a brilliant job of rewarding the player for role-playing.

The adventure begins with the players fighting to death in an arena, plotting with the other gladiators to escape. There are at least four methods of escape available. One method completely avoids bloodshed and earns the players a huge experience award. This event warmed my heart immediately to Darksun. The player then travels the world, righting wrongs and making friends until the final showdown with an evil despot. I call this adventure on a grand scale.

The interface takes some getting used to, especially learning how to utilize equipment and spells. Darksun uses the full screen to portray a top-down view of the adventure party in 256-color graphics. The artwork is quite good as is the background music. The animation and sound effects are top rate.

Darksun is a tremendous role-playing game. While the world itself is smaller than most, the adventures more than compensate by being detailed and imaginative. The game also possesses a fair number of "mini-quests"—small adventures like carrying healing herbs to a distant priest. This game is both rewarding and entertaining. (Strategic Simulations, Inc., 675 Almanor Ave., Suite 201, Sunnyvale, CA 94086-2901. 408/737-6800)

The Labyrinth of Time

Published By: Electronic Arts
List Price: $59.95
Reviewed By: Woody Liswood

The Labyrinth of Time, a DOS-based, CD-ROM game, is addictive, presenting some of the best graphics I've seen. On the other hand, the story line is marginal to nonexistent, the use of multimedia is poor to really bad, and the solution is absurd and not intuitive.

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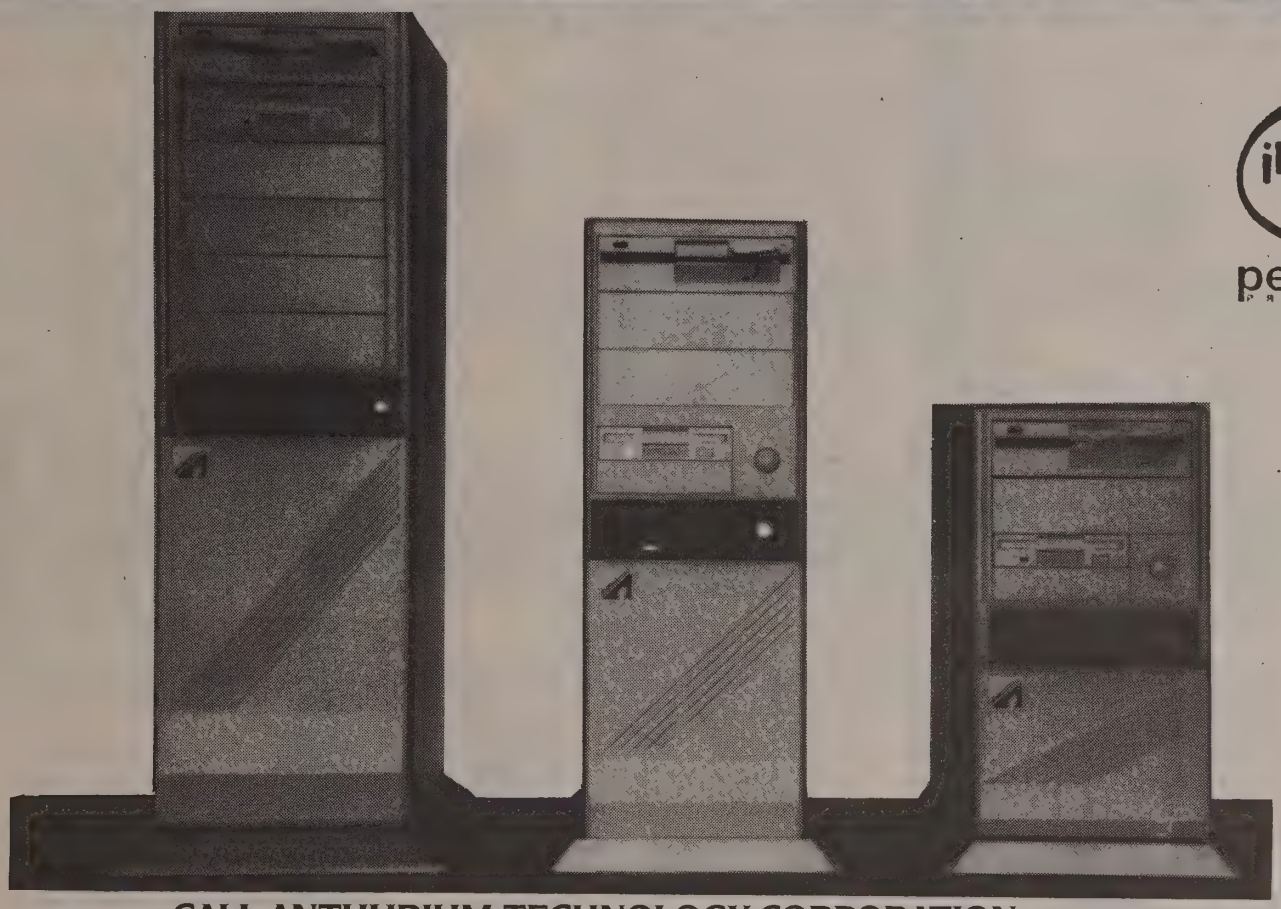

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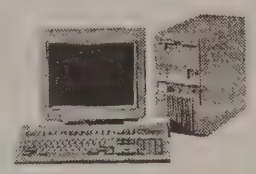

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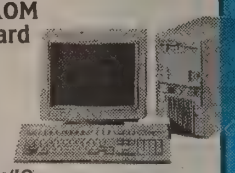

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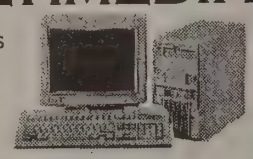

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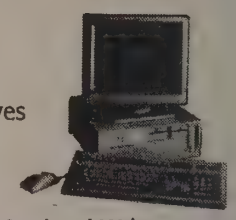

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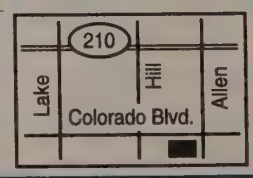

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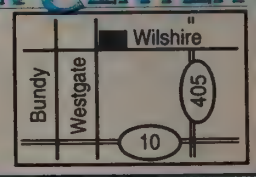

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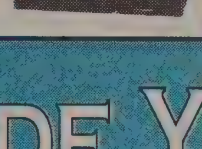

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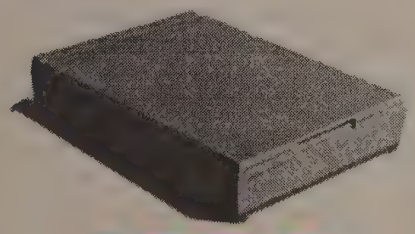

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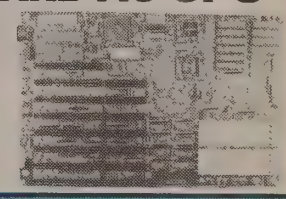

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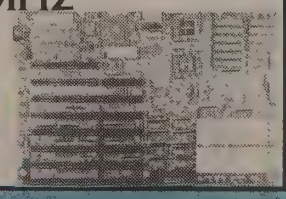

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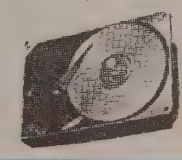

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But, to be honest, I kept at it until I solved the puzzle. I decided that I wasn't going to let the designers of this game get the better of me. At the end of the game is an advertisement for the next game in the series and I will probably try it as well.

The entire game is played with the mouse. You must find your way through a variety of puzzles which take place in different times and places. You can move forward and turn right or left. A single mouse click shows you a map of the places you've visited, so far. You will refer to this map continuously, since you will not remember the way through the various built-in mazes that keep reappearing. One of the mazes doesn't have a map, but after a few attempts you will find your way with ease.

The graphics are interesting and make up much of the game. As in all of these type of adventures, you must study and examine the screen carefully, since it is somewhat easy to miss a clue. If you get stuck in the game and want a clue, you can send me email (woody@well.sf.ca.us) and I would be pleased to point you in the best direction.

I had trouble with this game in a Laser Magnetics double-speed CD-ROM drive with a proprietary Philips CD-ROM interface. It would crash, go slow, and generally cause problems. I talked with the CD-ROM drive folks and they blamed Electronic Arts. I talked with Electronic Arts and they said that sometimes a CD-ROM product just won't work with a particular brand of drive. This seems to fit, given that everything worked fine in several other CD-ROM drives that I tested this game with.

The Labyrinth of Time is a good adventure to play with your kids. (Electronic Arts, Inc., PO Box 7578, San Mateo, CA 94403-7578. 415/572-ARTS)

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Macintosh Hardware Reviews

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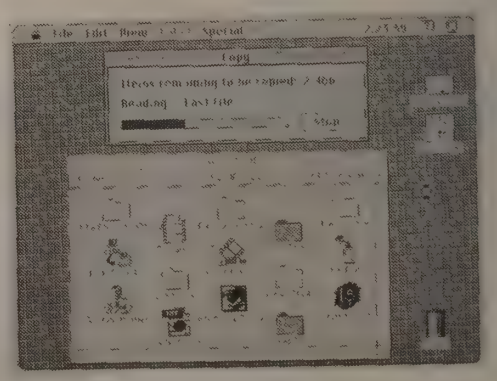
Manufactured By: Optima Technology, Inc.
List Price: $349 (DAT version reviewed, versions for other tape drives available)
Reviewed By: Matthew Leeds

Removable media drives are great. Purchase another cartridge or disc and you've got from 40MB to 600MB of new storage. It's less expensive than buying a new hard drive, but it's not cheap. You'll pay between $0.20 and $1.50 a megabyte. DeskTape takes this concept one step further, letting you use a tape drive as a mountable, removable storage device. You can fit up about 2GB on a DAT tape. With



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- SIS Chipset (DX-4 Upgradeable) (Benchmark Speed 144)
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- Local Bus Hard/Floppy Disk Controller
- 2 Serial/ 1 Parallel/1 Game Port
- Mini-Tower Case w/230W Power Supply
- 32 bit Local Bus 16.7M Color SuperVGA Graphics Accelerator w/1MB
- 14" NI SuperVGA Color Monitor w/Tilt & Swivel Base (1024x768 .28mm dp)
- Keytronic 101 Key Keyboard
- Mouse & Mouse Pad

Green PC VESA Local Bus

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486DX2-66

- 80486DX2-66 CPU w/256K Cache
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- Math Co-Processor; **AMI BIOS**
- SIS ChipSet (DX-4 Upgradeable) (Benchmark Speed 144)
- 8 Expansion Lots (3 **VESA** Local Bus)
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486DX2-66

- 86DX2-66 CPU; 256K Cache; AMI BIOS; **PCI Local Bus Motherboard**
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PENTIUM-60

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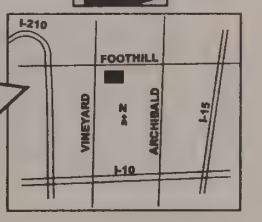

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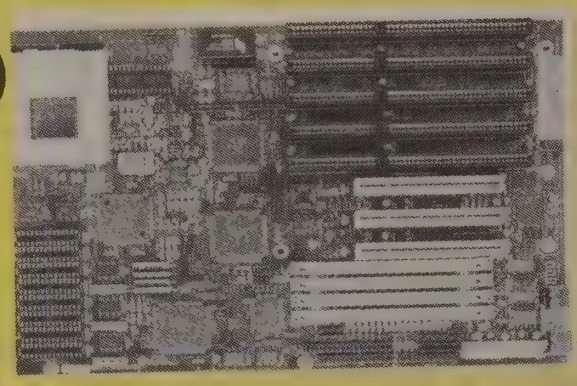

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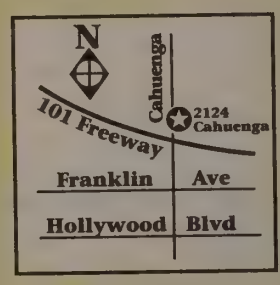

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current DAT tape prices, that's about a penny a megabyte.

DeskTape is a system extension with a control panel interface. It uses a form of copy protection in that you must "install" a key from an included tape. Keys can be "deinstalled" back to the tape, and there are three keys on the tape. Once installed, DeskTape lets you copy files to and from the tape by dragging the file icons from the Finder, just like a hard drive.

There are some differences. Speed for one. While much faster than a floppy, there were some very noticeable delays while working with files on a DeskTape volume. You can't edit files stored on tape; you must copy them to a hard drive, edit them, then copy them back. You can't run applications from the tape. You can delete files from the tape, but you don't get back the space they took up since data is written serially to the tape. There are some limits to the number of files you can store on a tape. The directory for the tape is buffered on your hard drive (requires between 5MB and 10MB on average).

I also ran into serious problems when I tried to play a QuickTime movie from tape. The first part of the movie played fine (due to the memory buffer set aside by DeskTape), but shortly into the movie the frame rate dropped to a new frame every ten seconds or so.

DeskTape is an alternative to using a backup program to save data to tape, and offers a cost-effective solution to removable storage, if you can live with its limitations. (Optima Technology, Inc., 17526 Von Karman, Irvine, CA 92714. 714/476-0515)

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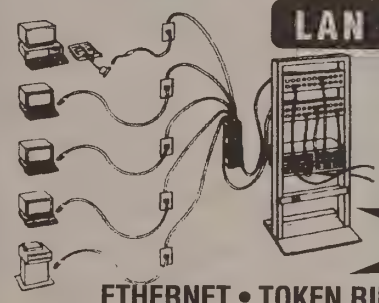

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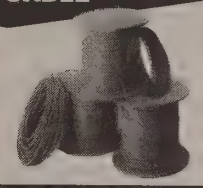

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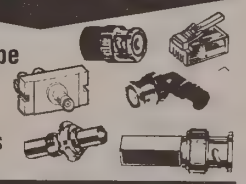
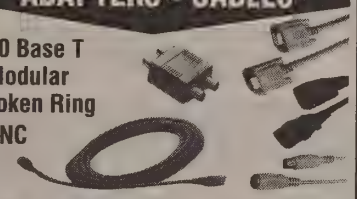


ADAPTERS • CABLES
• 10 Base T
• Modular
• Token Ring
• BNC



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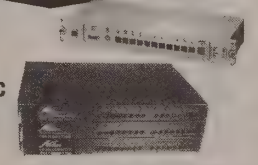
• AUI
• Fiber Optic
• Thin Wire



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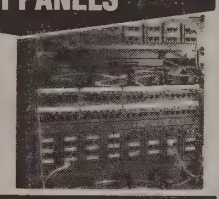

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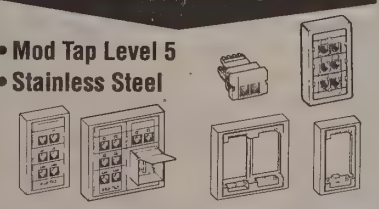

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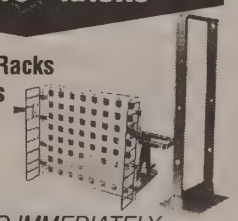

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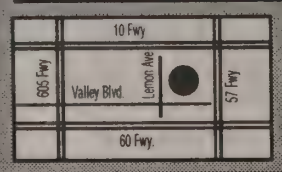

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ProCom MacCD Station

Manufactured By: ProCom Technology
List Price: $449
Reviewed By: Michael Robin

CD-ROM drives seem to be appearing everywhere these days, serving a variety of markets—business, home office, education, multimedia, and entertainment.

The MacCD Station 2B, from ProCom Technology, is targeted, though not exclusively, at the home office and educational markets. It seeks to compete with Apple's CD Multimedia Kit in price and performance.

It is built around the NEC double-speed CD-ROM drive, featuring an easy tray load mechanism similar to an audio stereo CD player. As a multimedia station it includes a pair of external, bat-

tery powered speakers, headphones, and the ability to play audio CDs while you are working at your computer. In addition, it has QuickTime compatibility and supports the Kodak PhotoCD Multisession format.

Like most CD-ROM drives in the stores, the MacCD Station comes bundled with CD-ROM titles, which include Compton's Interactive Encyclopedia, Mozart: Dissonant Quartet from Voyager, Sherlock Holmes, Consulting Detective from ICOM Simulations, and several others.

ProCom has put together a solid package for you to enter the world of CD-ROMs. Double-speed drives are currently the baseline standard that the CD-ROM software is being written for. Although triple- and quadruple-speed drives are beginning to appear, a double-speed drive should meet the vast majority of your needs for the foreseeable future.

My only complaint with the MacCD Station was that its documentation is too sparse. For example, the User's Guide does tell you to plug the speaker into the jack on the front of the drive, but I could not find where it tells you that to get both speakers to work the right speaker plugs into the left one. But, I did figure this out after looking everywhere to fit the speaker's odd two-prong plug.

The real question of whether you *need* a CD-ROM drive is a separate question that only you can answer. CD-ROM discs are excellent for accessing large volumes of information, such as an encyclopedia, unabridged dictionary, or business documentation. On the entertainment and educational front, I have mixed feelings. Some of the software I tried was just too slow to feel interactive and engaging, poorly designed, and consisting of weak, quickly repackaged content. (ProCom Technology, Inc., 2181 Dupont Dr., Irvine, CA 92715. 714/852-1000)

Continued on page 161

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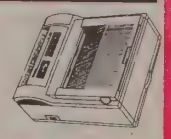

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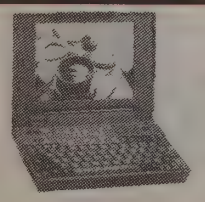

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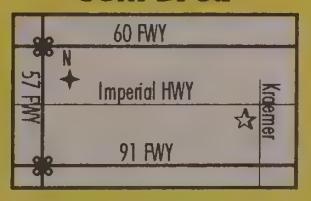

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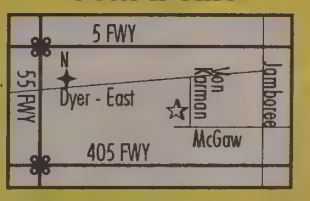

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• 355MB, 2year warranty	
CONNER/W. DIGITAL 420MB IDE HDD	$268
W. DIGITAL 540MB IDE HDD	$380
QUANTUM 530MB SCSI HDD	$400
QUANTUM 1.08GIG SCSI HDD	$710
QUANTUM 1.8GIG SCSI	$1,015

ALL SPECIALS - LIMITED SUPPLY

586DX-60
PENTIUM VESA LOCAL BUS

- 586 VESA LB M/B HOT 503 OPTI
- INTEL 586DX-60 CPU
- ZIF PENTIUM SOCKET
- 512K CACHE MEMORY
- 16MB RAM (32-BIT MEMORY)
- CPU COOLING FAN & HEAT SINK
- TEAC 1.2MB & 1.44MB DUAL FDD
- 530MB SCSI HARD DRIVE
- 32 BIT VLB SCSI II CONTROLLER ADAPTEC 2842VL
- DIAMOND VIPER VLB 2MB VRAM
- VIEWSONIC 17G 1280X1024 .26 D.P. NI
- 2 HI-SPEED SERIAL, 1PARALLEL
- FULL TOWER CASE W/2 FANS
- 250WATTS POWER SUPPLY
- KEYTRONICS KT-2000 ENHANCED K/B
- MICROSOFT SERIAL MOUSE

SPECIAL $$$ CALL

9405B

CASES W/P.S.

Enhance Desktop w/230W p.s. 6.5"x16.75"x17.25"	$40
Black Enhance Desktop w/200Wp.s.& dig. disp.	$95
Mini Tower w/200W (special) w/230 p.s. 13"x16"x7.25"	$36/40
Black Mini Tower w/230Wp.s.& dig. display	$55
Med. Tower w/230W p.s. & dig. display 8.5"x16.75"x17.25" (BLACK MED)	$58/$80
Full Tower w/250W p.s. & dig. display 24.5"x17"x7.5"	$72
Full Tower w/250W p.s. & dig. disp. w/2 fans	$80
Black Full Tower w/250Wp.s.& dig.display	$105
Slim Line Case w/220W p.s.	$75
Multimedia Case (2x20W Speakers) Desktop w/PS	$105
Super Tower (File Server)	$185
2 fans + 10 bays w/300W p.s. w/wheels	

VIDEO DISPLAY

ACTI 16bit w/256K 800x600	$28
AVGA-3 1MB Graphics Acc./Truecolor	$55/68
TVGA-9000 VGA Card	$40
w/Trident 9000 Chipset, 512K	
TVGA-8900 SuperVGA Card	$68
w/Trident 8900 Chipset	
Cirrus Logic GD5424 1MB VLB Accelerator	$75
Cirrus Logic GD5426 1MB VLB Accelerator	$85
PVGA Graphics Accelerator w/1MB	$90
w/Hi-Color Chip (WD chipset) Paradise compatib.	
ATi Ultra Plus (1280x1024, 2MB Dram)	$240
ATi Ultra Pro (1280x1024)	$340
1280x1024 Non-interlaced, 2MB VRam	
EISA ATi Ultra Pro (1280x1024)	$430
1280x1024 Non-interlaced, 2MB VRam	
Diamond SpeedStar-24X 1MB	$165
VGA Card (16 mil. colors)	
Diamond SpeedStar Pro VLB 1MB Accelerator	$120
Diamond Stealth 1MB (24x)	$160
Windows Accelerator	
Diamond Stealth 24 VLB 1MB Accelerator	$140
Diamond Stealth Pro VLB 1MB Accelerator	$245
Diamond Stealth Pro VLB 2MB Accelerator	$320
Diamond Stealth 32 PCI w/2MB	$250
Diamond Viper VLB 2MB VRAM Accelerator	$350
Diamond Viper PCI 2MB VRAM Accelerator	$395
OAK 087 1MB Accelerator	$58
Orchid Fahrenheit Windows Accelerator 24Bit, 16.7 mil. colors w/1MB	$160
Orchid Fahrenheit VLB Win accelerator 1MB	$145
S3/805 VLB 1MB Accelet. (2MB exp.) *special*	$98
Mono Graphic w/Printer port	$15

Best Buy

MODEMS + TAPE BACK-UP

Conner Tape Back-up 250MB w/1 cartridge	$140
Colorado Tape Back-up 120MB	$115
Colorado Tape Back-up 250MB	$160
Jumbo Tracker JT10 120MB	$300
Colorado parallel port Tape Back-up	
Jumbo Tracker JT20 250MB	$355
Colorado parallel port Tape Back-up	
External Drive Kit KE-09 (no adapter)	$80
Tape Drive Adapter AB-11 (for ext.)	$40
FC-10 500Kb/s-1Mb/s Adapter Kit	$90
TC-15 Data Compression Adapter Kit	$189
Tape Back-up Cartridge 120/250MB	$20/22
9600/4800 Fax/Modem w/MNP7	$25
14 400 Modem int w/v.32/v.42 w/Fax	$90
Super Fax - Windows software	$10
U.S. Robotics Sportster Modems	
9600PC Internal Data Modem	$130
9600 External Data Modem	$150
14400 Internal Data/Fax Modem	$140
14400 External Data/Fax Modem	$160

MOTHERBOARDS

286-12Mhz/286-20Mhz	$35/55
386-SX33/SX40Mhz	$59/65
386-DX25 w/o CPU; w/CPU OPTI	$75/115
386-33 128K cache w/o CPU; w/CPU OPTI	$75/125
386-40 128K cache w/o CPU; w/CPU OPTI	$75/110
386-40 128K cache w/o CPU; w/CPU ACTI	$70/100
486SX-25 128K cache w/o CPU; w/CPU OPTi	$90/168
486DX 128K cache w/o CPU, OPTi	$95
Cyrix 486DLC-33/40 128K cache w/CPU & Math Co	call

VESA Local Bus M/B w/o CPU:

IBM VLB 486SLC2-66 *SPECIAL* w/CPU & Math Co	$298
OPTi 486 VLB w/256K Cache w/P24 socket	$95
OPTi 486 VLB w/256K Cache	$100
w/3 VLB slots & Bus Mastering, ZIF socket	
VEGA 486 VLB w/256 cache (USA made)	$170
w/3 VLB slots & Bus Mastering, ZIF socket	
New 386/486 upgradeable VLB M/B 256K cache	call
takes 386DX CPU / 486 CPU's	

SPECIAL

VLB486SX-25 128K cache w/CPU OPTi	$178
VLB486DX-33 256K cache w/DX33 CPU	call
VLB486DX2-50 256K cache w/DX2-50 CPU	call
VLB486DX2-66 256K cache w/DX2-66 CPU	call

EISA/VESA Local Bus M/B w/o CPU, 0K Memory:

OPTi 486 EISA w/256K cache (8 EISA slots)	$250
VEGA 486 EISA w/256 cache (USA made)	$365
OPTi 486 EISA-VLB w/256K cache w/ZIF socket	call
HINT 486DX-33/50/66 EISA-VESA w/256K	call
w/ZIF Socket (3EISA, 2VLB, Pentium overdrive)	
TYAN 486DX-33/50/66 EISA-VESA w/256K	$280
w/ZIF Socket (8 EISA, 2 VLB, US Made, cache 1MB upgradeable)	
Pentium 586 Motherboard VLB+PCI	call

H/F CONTROLLERS

VLB IDE + I/O 2S/PG (VESA)	$25
IDE + I/O 2S/P/G (ISA)	$18
IDE 1:1 2H/2F Ctrl (Qty 20+ $9)	$15
IDE 1:1 2H/4F Ctrl I-40	$35
IDE 1:1 2H/2F Ctrl w/ROM (for Networks)	$45
Super IDE 2H/2F w/AT I/O (Qty 20+ $11)	$20
VESA LB Super IDE ctrl. w/I/O (2H/2F, 2s,p,g)	$25

ADAPTEC SCSI 1522/1522K	$100/140
ADAPTEC SCSI 1542CK/1542CK+	$240/310
ADAPTEC SCSI 2742T EISA Ctrl.	$290
ADAPTEC SCSI 2742A EISA Bus Master, w/Kit	$360
ADAPTEC 2842 VLB SCSI H/F Ctrl w/kit	$285
Bus Logic KT445S VLB SCSI Cntr. Kit	$280
Bus Logic KT542B ISA SCSI Cntr. Kit	$280
DTC 2290 EISA IDE Ctrl 4HD/4FD, 8MB/sec	$120
DTC 3270 VLB SCSI-2 Ctrl	$130
DTC 3290AS EISA to SCSI Cache Ctrl.	$395
ASPI comp., Host adapter, (4MB exp.)	
DTC 3292 EISA SCSI Ctrl (non-cache)	$330
LCS EISA IDE Ctrl w/1MB Cache (16MB exp.)	call
Promise ISA IDE w/512K (exp. 8 5MB)	$150
Promise 4030VLB IDE Cache Ctrl (exp.16MB)	$135
Promise 420 VLB IDE w/AT I/O w/512K	$145
Tekram DC-680 VLB IDE Ctrl (exp. 16MB)	$155
UltraStor 14F SCSI FD/HD Ctrl	$220
UltraStor 24F EISA SCSI FD/HD Ctrl	$350
UltraStor 34F VESA Local Bus SCSI FD/HD Ctrl	$275

I/O CARDS

AT I/O (2S/P/G) (Qty 20+ $8.50)	$13
High Speed AT I/O (Qty 20+ $32)	$38
(16C550 comp., 2 serial/1 parallel ports)	
Super IDE 2H/2F w/AT I/O (Qty 20+ $11)	$18
VESA LB Super IDE ctrl. w/I/O (2H/2F, 2s,p,g)	$25
Printer card/Game card	$9/9

KEYBOARDS

BTC 101 Enhance 5339	$25
Lite-On 101	$35
Keytronic 101 KT2000 (USA)	$35
Fujitsu 4700 101	$45
Focus 2001 w/Dust Cover	$35
F8000 111 Keys w/Calculator (soft)	$45
Focus 9000 128 Keys w/Calculator	$55
BLACK ACTi 101 Enh. k/b	$42
BLACK Focus 2001 101 Enh. k/b	$40

MONITORS
Authorized Viewsonic Dealer

12" Mono Monitor (Amber)	$75
14" Mono Monitor (P.W.)	$80
14" Mono VGA (P.W.)	$100
14" MQ VGA (I) (640x480, 42)	$170
14" CTX5468/Arcus SVGA (.28mm 1024x768)	$255
14" Black Arcus SVGA Int. (.28mm)	$275
14" CTX 5468 N/Arcus 1448 SVGA Multisync	$280
14" CTX1451 NI (1024x768, .28mm)	$255
14" CTX1461 NI (1024x768, .28mm, 72Hz)	$275
14" Black Arcus NI (.28) 1024x768 Multisync	$300
14" Infiniti 1439/Sunshine 7A SVGA (.39mm 1024x768)	$190
14" MQ 1450I SVGA (.28mm 1024x768)	$225
14" Infiniti N4/Sunshine8 SVGA ..... *SPECIAL*	$240
Non-Interlace (.28mm 1024x768)	
15" CTX1561NI (1024x768, .28mm.)	$360
15" Infiniti 15 NI Multisync FS (.28mm 1024x768)	$289
15" Infiniti 15 NI Multisync FS (.28mm 1280x1024)	$365
Microprocessor ctrl.	
15" MAG DX-15F/MX-15F	$408/455
17" MAG DX-17F/MX-17F	$780/$850
17" CTX 1760 (.28mm NI, 1280x1024)	$650
17" Mitac MTC731	$560
Non-Interlace (.31mm 1024x768)	
15" NEC 4FGE/ 17" NEC 5FGE	$725/1120
(.28 mm multiple frequency)	

ViewSonic®

14E 14" SVGA (.28dp, 1024X768@NI)	$300
6E 14" SVGA NI (.28dp, 1024x768)	$275
15 15" SVGA NI (.28dp, Digital, 76Hz)	$435
15E 15" SVGA NI (.28dp, Flat screen, 76Hz)	call
17 17" SVGA NI (.27dp, Digital, 76Hz, 1600X1280)	call
17G 17" SVGA NI (Multi-Freq. .28dp,1280x1024)	call
20 20" SVGA NI (.28dp, Dig., 76Hz)	$1455
21 21" SVGA NI (.28dp, Dig., 76Hz)	$1750

"BLACK" components available

Arcus 14" (I) & (NI) monitors
Teac Floppies
Teac Dualspeed SCSI CD-ROM
Keyboard, Mouse, Cases

CD ROM & ACCESSORIES

BEST BUY Panasonic 562 w/interface	CALL
64K cache,dual speed, 315ms, 150/300kB/sek.	
Multisession/Kodak PhotoCD ready *SPECIAL*	
NEC CD 74 Ext. SCSI/84 Int. SCSI (280ms)	$250/280
Toshiba CD 340 1B Internal SCSI CD-ROM	$310
Toshiba CD 340 1B Int. SCSI CD-ROM w/Interf	$400
Fully integrated Audio Double-speed, MPC compliant, Multi-Session Kodak Photo CD compliant, SCSI-2	
Creative Lab Sound Blaster Pro Deluxe	$140
Creative Lab Sound Blaster 16/ASP	$178/230
Media Vision Pro Jazz 16 Sound Card	$115
NEC 510 SCSI Triple Speed CD-ROM	$355
Teac Dual Speed SCSI CD-ROM (Black face)	$350

MICE & TRACKBALLS

Leadgen Hi-res Mouse(Serial) CP3 NX	$10
Truemouse TX/AX 300 (Serial) w/mouse pad	$20
Truemouse TX/AX 300A (Ser.) w/mouse pad	$15
Truedox Trackball TR300	$35
Logitech Dexxa Mouse	$22
Logitech MouseMan	$66
Logitech TrackMan II (Serial)	$78
Logitech TrackMan Portable	$105
Genius Portable Trackman	call
Microsoft Mouse Serial/Bus	$65/75
BLACKA-Tech (Serial) Hi-res Mouse	$22

HARD DISKS/FLOPPY DRIVES

CONNER 30084 80MB IDE (17ms)	N/A
CONNER 30174 170MB IDE (17ms)	$182
CONNER 30204 210MB IDE (12ms)	$198
CONNER 30254 251MB IDE (14ms)	$220
CONNER 340MB IDE	$260
CONNER 420MB IDE	$275
CONNER 30544 540MB IDE (10ms)	$400
CONNER 30540 540MB SCSI-2 (10ms)	$470
CONNER 1.06GIG SCSI-II	$750
FUJITSU 2624T 513MB IDE (10ms) 5 yr. warr.	$185
FUJITSU 2623FA 513MB SCSI (12ms) 5 yr. warr.	$585
FUJITSU M2266SA 1.0GB SCSI (14ms) 5 yr. warr.	call
FUJITSU M2652SA 2.0GB SCSI (11ms) 5 yr. warr.	call
MAXTOR 7120A 120MB IDE (15ms)	$175
MAXTOR 7213A 210MB IDE (15ms)	$215
MAXTOR 2135 213MB SCSI (15ms)	$260
MAXTOR 7245A 245MB IDE (14ms)	$225
MAXTOR 340A 340MB IDE (13ms)	call
MAXTOR 340S 337MB SCSI (13ms)	$370
MAXTOR 534A 535MB IDE (13ms)	$415
QUANTUM LPS 170MB IDE (15ms)	$190
QUANTUM Q24A012 240MB IDE (13ms)	call
QUANTUM 530MB IDE	$400
QUANTUM 530MB SCSI	$450
QUANTUM 1.08GB/1.80GB SCSI	call
WESTERN DIG 2200 210MB IDE (15ms)	call
WESTERN DIG 2250 250MB IDE (13ms)	call
WESTERN DIG 340MB IDE (12ms)	$285
WESTERN DIG 420MB IDE	$285
WESTERN DIG 540MB IDE	$405
SAMSUNG 170MB IDE	$180
SAMSUNG 250MB IDE	$200
SAMSUNG 350MB IDE	$248

Samsung 1.2/1.44MB	$45/45
Teac 1.2/1.44 (Black available call)	$50/45
1.44 with kit add	$3
FD505 Teac 2 in 1 1.2+1.44MB FDD	$105
BD800 Epson 2 in 1 1.2+1.44MB FDD	$98

Minimum order $300 or Qty 10+. Call for Dealer Qty Discounts and other products (Printers, RAM, P.S.) prices.

TERMS: 1year warranty on parts & labor. Printers & monitors warranty thru manufacturer. All sales on CHIPS, MONITORS & PRINTERS are final. NO REFUND! All returns are subjected to our approval & must have prior authorization. Return items must be in good condition & in its original packing shipped prepaid & insured. All refunds or credits are less freight & bank charges. All refund items must be returned within 14 days of invoice. There will be a restocking charge of 20% after the 7 days period & within 14 days of invoice. Not responsible for any typographical errors. Price & availability subject to change without any notice. Prices are COD cash/cashiers chk.

Resources

Calendar of Events

Conferences, Shows, Special Events

May

May 14–15 Computer Marketplace. Pomona Fairplex. National Productions. Call: 1-800-800-5600.

May 15 Computer Show And Sale. Antelope Valley Fairgrounds, Lancaster. MarketPro Shows. Call: (415)456-6730.

May 18–19 Government Technology Conference '94: A Cooperative Vision—Making The Connection. Sacramento. Association Of California Government Agencies. Call: (916)363-5000.

May 21 California Computer Show And Sale. Anaheim Stadium, Anaheim. Robert Austin Corp. (415)347-0100.

May 22 ACP Computer Swap Meet. 1310 E. Edinger, Santa Ana. ACP. Call: (714)558-8813.

May 23–27 DB/Expo. San Francisco. Smith & Shows. Call: 1-800-2DB-EXPO.

May 23–27 Silicon Graphics Expo. San Jose. Silicon Graphics and PCI Trade Show. Call: 1-800-727-EXPO.

May 28 California Computer Show And Sale. Glendale Civic Auditorium, Glendale. Robert Austin Corp. (415)347-0100.

May 28–29 Computer Show And Sale. Ventura Fairgrounds, Ventura. MarketPro Shows. Call: (415)456-6730.

May 28–29 International Computer Show And Sale. Anaheim Convention Center. R.G. Canning. (213)587-5100, Event Ext. 4; (909)628-4236, Event Ext. 50.

May 29 California Computer Show And Sale. Industry Hills Sheraton, City of Industry. Robert Austin Corp. (415)347-0100.

June

June 2–3 PageMaker Conference. Seattle, WA. Thunder Lizard Productions. Call: (206)285-0305.

June 3–4 Computer Marketplace. Pomona Fairplex. National Productions. Call: 1-800-800-5600.

June 5 Computer Show And Sale. Scottish Rite Center, San Diego. MarketPro Shows. Call: (415)456-6730.

June 6–8 Digital World 94. Los Angeles Convention Center, Los Angeles. Seybold Seminars. Call: 1-800-488-2883 or (415)578-6900.

June 6–11 Infocomm '94. Anaheim Convention Center, Anaheim. Infocomm International. Call: 1-800-345-EXPO.

June 7 Interactive Media Festival Awards Show. Los Angeles. Interactive Media Festival. Call: (408)982-0400.

June 9–11 CorCon 4: The Fourth ACAD CorelDRAW Conference And Technology Expo. Red Lion Hotel, Glendale. Assoc. of Corel Artists and Designers. Call: (818)563-ACAD.

June 11 Computer Marketplace. Sherman Square Entertainment Ctr., Reseda. National Productions. Call: 1-800-800-5600.

June 12 Computer Marketplace. Sequoia Conf. Ctr., Buena Park. National Productions. Call: 1-800-800-5600.

June 12 Computer Show And Sale. Community Center, Oxnard. MarketPro Shows. Call: (415)456-6730.

June 12 Computer Show And Sale. Fresno Fairgrounds, Fresno. MarketPro Shows. Call: (415)456-6730.

June 13–15 NECC '94: The National Educational Computing Conference. Boston. International Society for Technology in Education. Call: Donella Ingham, (503)346-2834.

June 13–16 SunWorld Conference. San Francisco. Smith & Shows. Call: (508)820-8658.

June 16–18 Tutorial Week '94. Ramada Hotel, Culver City. Association for Computing Machinery. Call: Dave Oppenheim, (310)476-4919.

June 17–18 MacFair LA '94, The Macintosh Trade Show For Southern California. Burbank Hilton Convention Center. Los

JUNE 4–5

COMPUTER SHOW

POMONA

National Productions, which brought you the Los Angeles Computer Fair, presents the Computer Marketplace. Over three hundred exhibits with thousands of products are featured. Seminars through the weekend are open to all participants from beginner to the advanced computer user. Admission is $7, and shows are from 10:00 am to 5:00 pm at the Los Angeles County Fairgrounds (Fairplex), Pomona. Call: 1-800-800-5600.

JUNE 17–18

MACFAIR LA '94

BURBANK HILTON AND CONVENTION CENTER, BURBANK

MacFair LA '94 is two days of exhibits and seminars dedicated to Macintosh users and purchasers. Last year's event attracted over six thousand attendees and included key industry players such as Apple, Microsoft, Adobe, Aldus, Claris, Frame, Hewlett-Packard, and many more. The Los Angeles Macintosh Group is the largest Macintosh user group in the US and has a record of producing successful major events; and this year's turnout is expected to be over eight thousand attendees. Call: (818)574-8048.

JUNE 6–8

FIFTH ANNUAL DIGITAL WORLD CONFERENCE & EXPO

LOS ANGELES CONVENTION CENTER

Digital World is the first and largest industry-independent event focused on the applications and implications of digital technology, as represented by the converging worlds of broadcast, computers, consumer electronics, entertainment, publishing, and telecommunications. This year's event will feature more than 150 exhibitors, over fifty thousand square feet of hands-on exhibits, and more than twenty thousand attendees. Call: 1-800-488-2883.

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2 YEAR WARRANTY PROGRAM IS AVAILABLE... PLEASE CONTACT US!

NOW AVAILABLE 21" SRC-2102

- AR Bonded Panel CRT w/Invar Shadow Mask and 0.28mm Dot Pitch
- Dynamic Focus Gun
- Wide Autoscan Capability from 30KHz to 82KHz
- Ultra High Resolution of up to 1600x1280 (Non-Interlaced)
- Two Types of 9 Pin D-Sub and 5xBNC Connectors are Provided for Optional Video Signal Connection to Prevent Image Distortion
- 20 Programmable Digital Control Memory Settings Available for Picture Sizing and Centering
- Additional Rotation Control Designed to get Exact Location of Image w/out Tilt Distortion Due to Earth Magnetic Field
- Accurate Color Control Designed to Match w/Individual Color Output Needs
- *MPR II Low Radiation*

20" SRC-2002

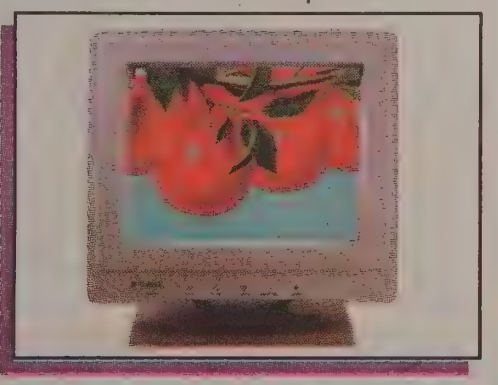
- 0.28mm Dot Pitch CRT w/Invar Shadow Mask and Anti-Static Treatment
- Dynamic Focus Gun
- Wide Autoscan Capability From 30KHz to 82KHz
- Ultra High Resolution of up to 1600x1280 (Non-Interlaced)
- Two Types of 9 Pin D-Sub and 5xBNC Connectors are Provided for Optional Video Signal Connection to Prevent Image Distortion
- 20 Programmable Digital Control Memory Settings Available for Picture Sizing and Centering
- Additional Rotation Control Designed to get Exact Location of Image w/out Tilt Distortion Due to Earth Magnetic Field
- Accurate Color Control Designed to Match w/Individual Color Output Needs
- *MPR II Low Radiation*

SRC-1403/SRC-1501/1501L 14", 15" SUPER VGA III

- Horizontal Frequency: 28-64KHz
- Resolution: Maximum 1280x1024 (Non-Interlaced) .28mm CRT
- Full Screen
- Compatible w/Apple Mac II
- Refresh Rate: 70Hz at 1024x768
- VESA Standard
- Automatic Pin Cushion Compensation
- *15" Only MPR II Low Radiation Available*

SRC1701/1702/1702L 17" FLAT SQUARE

- Ultra High Resolution up to 1600x1280 (Non-Interlaced)
- Two Types of 9 Pin D-SUB and 5xBNC Connectors are Provided for Optional Video Signal Connection to Prevent Image Distortion
- 20 Programmable Digital Control Memory Settings Available in SRC 1702 for Image Sizing and Centering
- Accurate Color Control Designed in SRC 1702 to Make the Displayed Color Match Closely the Printer Output
- Horizontal Frequency: 32-82KHz Continuous
- 0.26mm Dot Pitch Non-Glare, F.S.T. w/Double Focus Gun, CRT Type
- *MPR II Low Radiation Available as Option*



SRC-1452/1452L 14" SUPER VGA II

- Horizontal Frequency: 30-38KHz, 47-50KHz
- Resolution: Maximum 1024x768 (Non-Interlaced) .28mm CRT
- Full Screen
- Universal Power Supply 110/220
- Compatible With Apple Mac II
- *MPR II Low Radiation Available*

SRC-1451/1451L 14" SUPER VGA I

- Horizontal Frequency: 30-38KHz
- Resolution: Maximum 1024x768 (Interlaced) .28mm/.39mm CRT
- Full Screen
- Universal Power Supply 110/220
- Compatible w/Apple Mac II
- *MPR II Low Radiation Available*

FOR PURCHASING AND/OR OTHER INFORMATION, PLEASE CONTACT YOUR LOCAL COMPUTER DEALER.

Resources

Angeles Macintosh Group. (818)574-8047.

June 19 Computer Show And Sale. Antelope Valley Fairgrounds, Lancaster. MarketPro Shows. Call: (415)456-6730.

June 23–25 PCC '94: The Personal Communications And Computing Show. Chicago, IL. PCC. Fax: (202)457-8898.

June 25–26 Computer Marketplace. Pomona Fairplex. National Productions. Call: 1-800-800-5600.

June 25–26 FLIGHT.Ware Xpo. Santa Monica. Santa Monica Museum of Flying. Call: (310)392-8822.

July

July 2 Computer Show And Sale. Ventura Fairgrounds, Ventura. MarketPro Shows. Call: (415)456-6730.

July 3 Computer Show And Sale. Scottish Rite Center, San Diego. MarketPro Shows. Call: (415)456-6730.

July 9 Computer Marketplace. Sherman Square Entertainment Ctr., Reseda. National Productions. Call: 1-800-800-5600.

July 9 Computer Show And Sale. Fresno Fairgrounds, Fresno. MarketPro Shows. Call: (415)456-6730.

July 10 Computer Marketplace. Sequoia Conf. Ctr., Buena Park. National Productions. Call: 1-800-800-5600.

July 16–17 Computer Marketplace. Pomona Fairplex. National Productions. Call: 1-800-800-5600.

July 21–23 1994 International Symposium On Mathematics, Science Education, and Technology. San Diego. Association For The Advancement Of Computing In Education. Call: (804)973–3987.

July 21–24 Imaging The Future: The Effect Of The Digital Revolution On Design Conference. Kauai, Hawaii. American Film Institute. Call: (213)856-7600.

July 23 Computer Marketplace. Earl Warren Showgrounds, Santa Barbara. National Productions. Call: 1-800-800-5600.

July 23–24 International Computer Show And Sale. Riverside Convention Center (Raincross Square). R.G. Canning. (213)587-5100, Event Ext. 4; (909)628-4236, Event Ext. 50.

July 24 Computer Show And Sale. Community Center, Oxnard. MarketPro Shows. Call: (415)456-6730.

July 24–29 Siggraph '94. Orlando, FL. Association For Computing Machinery. Call: (708)850-7843.

July 27–29 Object World Conference. San Francisco. Smith & Shows. Call: (508)820-8658.

July 31 ACP Computer Swap Meet. 1310 E. Edinger, Santa Ana. ACP. Call: (714)558-8813.

July 31 Computer Show And Sale. Antelope Valley Fairgrounds, Lancaster. MarketPro Shows. Call: (415)456-6730.

August

August 1–5 Tools USA Conference. Santa Cruz. Smith & Shows. Call: (800)553-9939.

August 14–19 SCO Forum '94. Santa Cruz. Smith & Shows. Call: (800)553-9939.

August 17–21 ONE BBSCON. Atlanta, GA. ONE, Inc. Call: (303)693-5253.

CLASSES, SEMINARS, WORKSHOPS

May

May 17–20 Microwave/Millimeter-Wave Monolithic Integrated Circuits Class. Los Angeles. UCLA Extension. (310)825-1047.

May 18 Jazzed On Color Publishing Free Seminar. Irvine. Graphix Zone. Call: (714)833-3838.

May 19 Adobe Illustrator Clinic. Irvine. Graphix Zone. Call: (714)833-3838.

May 19 Adobe Photoshop Clinic. Irvine. Graphix Zone. Call: (714)833-3838.

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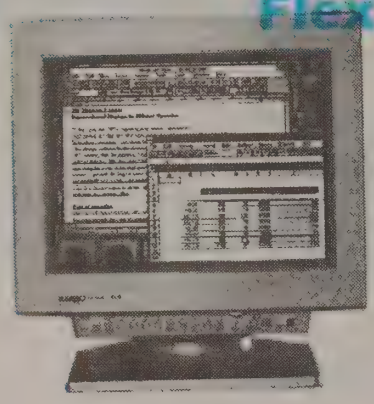

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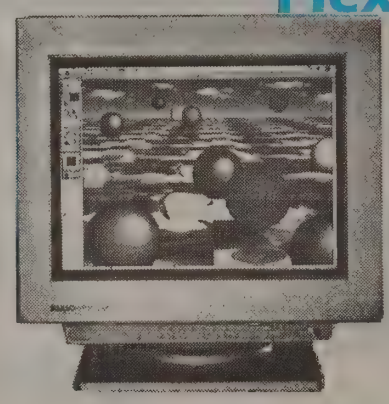

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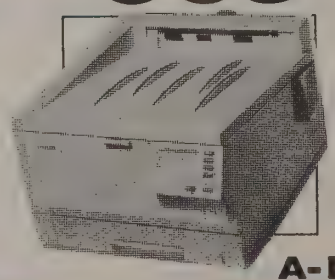

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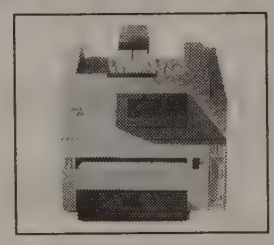

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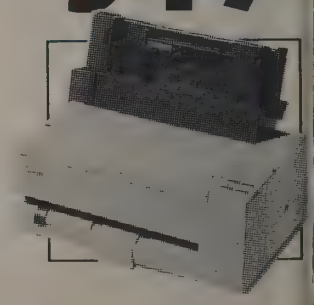

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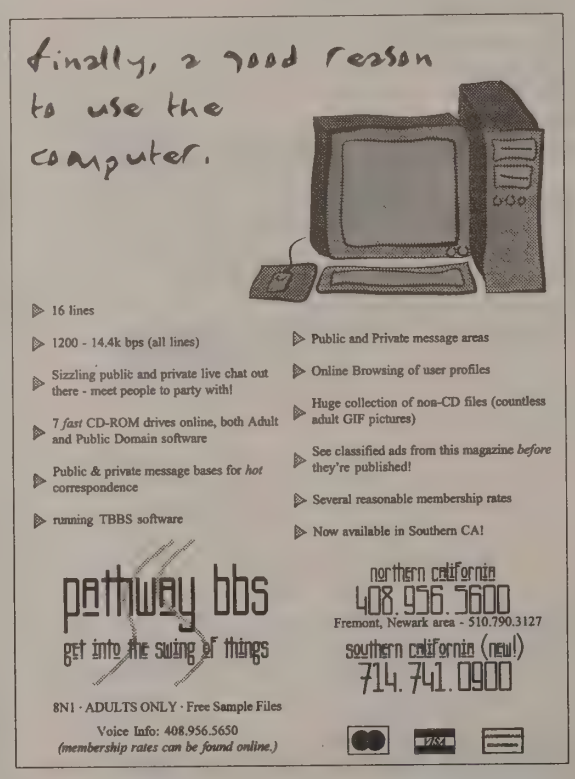
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BBS Spotlight

By John Wolcott

The Electronic Garden

Modem users are flocking in droves to BBSes that provide social interaction. Computer modem experience is greatly enhanced with bulletin boards that offer teleconference features, or "chatting" as many call it. Most subscription systems offer "chatting" without any age limitations. An "adult only" BBS heightens the level of social sophistication and creates an atmosphere that adult users often find more comfortable. This month, we'll take a look at a BBS that is an "adult only" social forum and offers a double dose of friendly interaction.

Eden, The Electronic Garden, comes to you from Newport Beach. It is a new BBS and became available to the public last February. The BBS supports any type of computer system, however, files for download are primarily for the IBM PC compatible platform.

This BBS was not a small-time undertaking. Design and implementation of the system was well done. Eden runs MajorBBS v6.21b-20 on 19 incoming phone lines; supported by Practical Peripheral 14.4 modems. Other system hardware includes an IBM PC compatible 486SLC/66 computer with 8MB of RAM and a Boca Research Board to link the modems. The system has a combined total of 1.2GB of drive space to run the system and provide download libraries.

Sysops Dan Vesely, alias "Sysop," and Brian Nelson, alias "WiLd OnE," work diligently to provide all that the users could want from a BBS. They boast Eden as having the fastest BBS "validation" (authorization for system use) and providing the friendliest BBS in Orange County. Vesely commented, "I saw a real need for a friendly, adult oriented, 'chatting based' BBS in this area. I really enjoy the BBS experience and wanted to provide it for others." He has done this in grand style.

When first logging on, you'll be asked some basic registration information. Choosing an "alias" is a system requirement and allows a level of anonymity among users. Get creative! You'll be amazed by some of the pseudonyms others have devised.

Limited access is available until you've been contacted by a system operator to verify your registration information. This is followed by email messages regarding system usage and social event announcements. The system usage mail has an informational system usage file attached to it and will allow you to immediately download the file for your off-line inspection. You may also choose to read about the system online from the information bulletins through the Info and Payments choice under the Main Menu. A two-week trial period is offered to new users without obligation.

System features include chatting with other currently connected users, online games, email to other system users, public discussion forums, a file upload and download library, matchmaking, and regularly scheduled parties.

The Chat Lounge is the most commonly used feature in Eden. When in "chat" you'll see a realtime social interaction process among the users. Whatever you type will be seen by all of those in the Chat Lounge. There is also a set of commands to invoke clever messages. These messages create an aura of being at a big social gathering with friends. For example, if your alias were Disk Jockey, typing in "beer Guinevere" would display to others in the lounge, "Disk Jockey just ran to the fridge and tossed Guinevere a cold beer!" This would properly be followed by Guinevere typing in "five Disk Jockey" to display "Guinevere just ran up and 'high-fived' Disk Jockey." Learning all of the system commands may take some diligence, but will make your experience in the Chat Lounge exciting and pleasurable. Information for using the system command set is available from Main Chat Lounge and a list of the action commands at your disposal is created by typing "/a list." It is a good idea to print out this list and keep it by the key-

Continued

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MAG 17F .26mm 1600x1024NI.....$870
ViewSonic15 15" .28mm 1280x1024NI ..$435
ViewSonic 17G 17" .28mm 1280x1024NI $785
ViewSonic17 17" .27mm 1600x1280NI ..$898
ViewSonic21 21" .25mm 1600x1280NI.....$1728
CTX 1451 14" NI Full Screen .28mm.....$277
CTX 1461LR 14" 1024x768/72Hz .28mm.....$299
CTX 1561LR 15" NI .28mm $342
CTX 1760LR 17" 1280NI .28mm $645

CD ROM

NEC CDR-510 3X Speed 195ms SCSI...$405
Mitsumi 2X Speed 250ms $159
Sony 33A 2X 300ms $165
Toshiba 3401B SCSI 200ms $375
Toshiba 3401E SCSI External.....$495
Panasonic CR-562 2X Speed 290ms.....$163

Video Boards

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Diamond SpeedStar Pro VESA w/1MB....$115
Diamond Stealth 24 VESA w/ 1MB.....$159
Diamond Stealth Pro VESA w/2MB VRam.....$319
Diamond Stealth 32 PCI w/2MB.....$265
Diamond Viper VESA w/2MB VRam $365
Diamond Viper PCI w/2MB VRam.....$365
Genoa 8500VL 1MB Upgradeable.....$109
Genoa Phantom 32i VESA w/2MB $205
Genoa Phantom 32p PCI w/2MB $235
Diamond Viper Pro PCI w/2MB VRAM...$385
Diamond Stealth 64 PCI w/2MB VRAM..$395
Diamond Stealth 64 VESA w/2MB VRAM..$395

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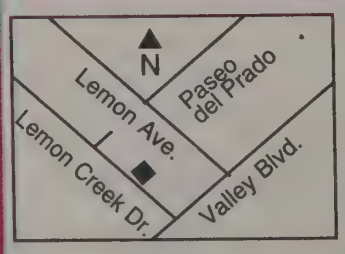
SoundBlaster 16 MCD ASP $199
SoundBlaster 16 SCSI.....$199
SoundBlaster 16 SCSI ASP $224



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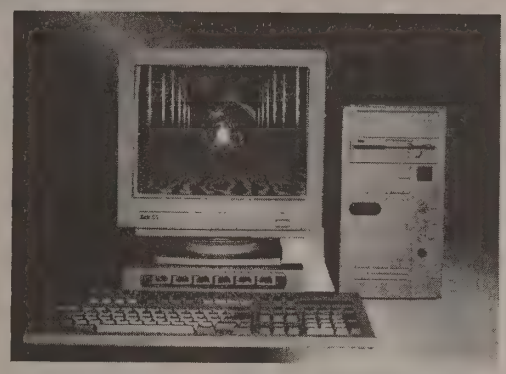

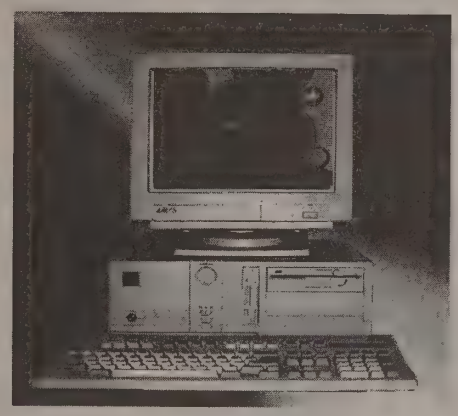

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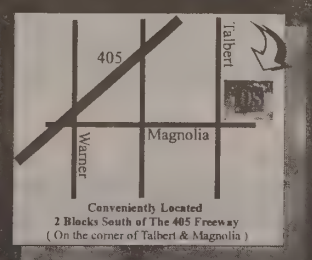

Resources

BULLETIN BOARDS cont.

interest files, doors, games, and fun. Running PcBoard 15.1/10, Qmail4, echo-mail, FidoNet, RimeNet. Sysop: Ronald Dishon. [Exp. #125.]

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The Cow God BBS. (310)559-2156. 24 hrs., 38,400. Almost a gig of shareware. Multiline chat, online games, 1500 messages/day. Sysop: Broc TenHouten. [Exp. #124.]

Dejavu BBS. (310)218-3561, 218-3562. 8-N-1, 24 hrs., 2400/14,400. Matchmaker, games, adult files, email, chat, Vietnamese/Chinese/Asian guys and gals welcome. Free. [Exp. #124.]

Original Apple Corps BBS. (310)454-4660. Apple II support. Sysop: Ed Molina. [Exp. #125.]

the original off-off broadway BBS. (310)453-7038. 8-N-1, 24 hrs., 300/1200/2400/9600. Nonsubscription, text files/messages only. Using MajorBBS software and CompuCom Speedmodem. Sysop:

BBS Spotlight cont.

board for quick reference. If you don't want everyone in the lounge to see a comment to another user, you may "whisper" your remarks by prefacing them with "/(alias of user to whisper to)." This command, followed by your message, will cause the message to be sent only to that particular user.

The online games available offer an adventure in role-playing that you'll find is a great way to "get away from it all." Games offered online for your amusement include Quest For Magic, Kyrandia, and Fazuul, providing hours of entertainment. A weekly trivia game for online users is offered in the Jester's Chat Lounge. Instructions for game play can be found in the System Wide Help section of the Info And Payments Center.

Although Eden is not yet networked with other BBS systems for email forwarding, mail to other users registered on the system is a great way to stay in touch when you can't seem to catch them in the Chat Lounge. The email system is full featured and offers an offline mail reader to allow mail review at your convenience. The

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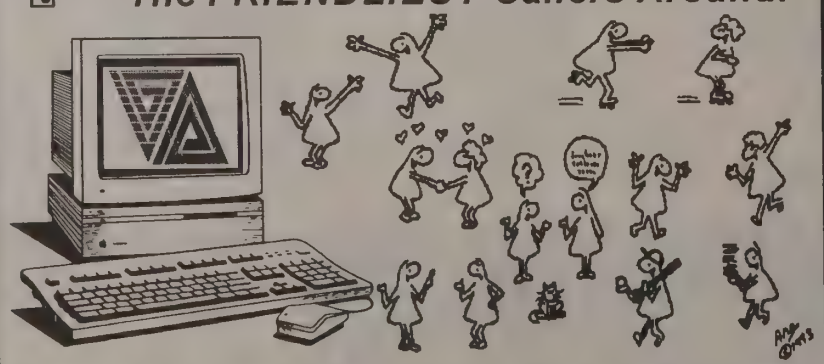

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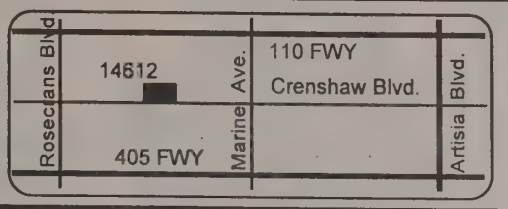

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KEYBOARD B.T.C. 101 KEYS	$ 17.00
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Orchid Farenheit VLB & ISA 1 MB (to 2MB)	$159.00
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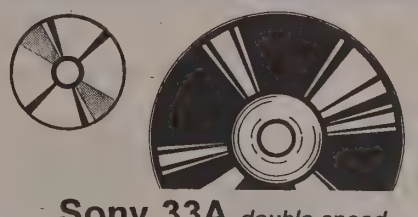

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CD Rom NEC SCSI	$289.00
Sony 33A CD ROM double speed	$169.00
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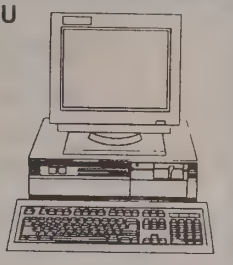
- S.V.G.A. Card
- 101 key board
- Mini tower case
- Monitor



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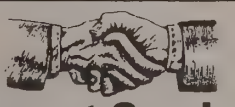

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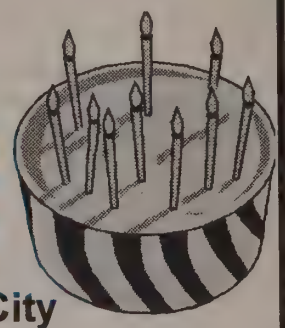

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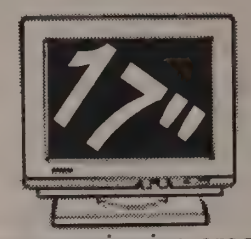

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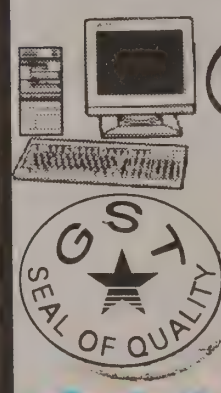

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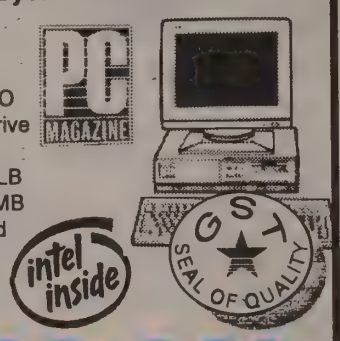
- 101 Enhanced Keyboard
- MS DOS 6
- MS Windows 3.11
- Mouse



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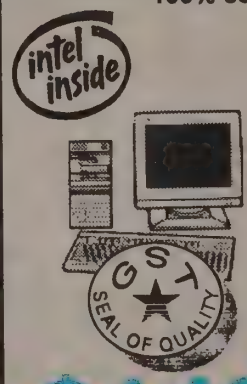

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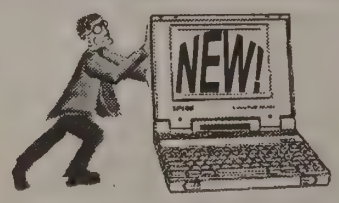
EPSON ACTIONNOTE 486SLC2/50MHz NOTEBOOK



If you're constantly on-the-go or in need of a tele-commuting solution, you're going to want a portable computer that's not going to cost you a fortune. Think Ahead! Weighing only 5.5lbs, this full-featured powerhouse 486SLC2/50MHz unit comes with 4MB RAM, a 120MB Hard Drive, a Logitech Trackball, a data/fax modem, Windows and DOS, its own carrying case, and a one year onsite warranty! All of this for only

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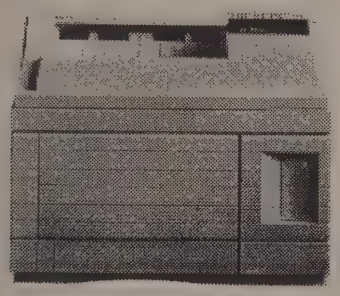

BRAND NEW! HP LASERJET 4 PLUS / 4M PLUS LASER PRINTER

Featuring incredible **600 dots-per-inch output with a *new 12 page-per-minute print engine***, the new HP LaserJet 4+/4M+ is the fastest 600 dpi printer on the market! This quickness can be attributed to the LaserJet 4's fast RISC processor and I/O, making printing complex graphics a breeze! Add to this 45 internal scalable typefaces and 2MB of standard memory (expandable to 32MB), and it's easy to see that the LaserJet 4+/4M+ is *Ahead* of it's time!

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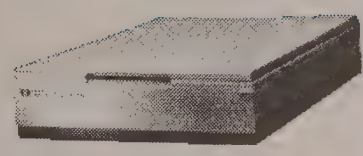

Think Ahead! HP makes scanning and document imaging affordable with their new low price on the ScanJet IIp Scanner. Featuring an optical resolution of 300dpi, plus a high quality 1200dpi enhanced grayscale resolution, the ScanJet IIp is the perfect solution for capturing text and graphics. The built-in DeskScan II software makes scanning easy and efficient and features HP AccuPage 2.0 technology for greater OCR accuracy. In addition to the free image-editing software enclosed with this scanner, ***HP is now offering free Calera® WordScan® OCR software with the ScanJet IIp!*** All for only:

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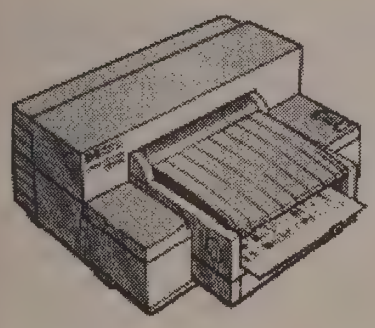
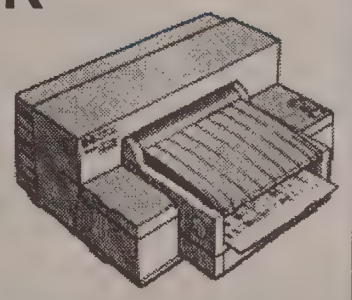


HP DESKJET 520 / DESKWRITER 520 PRINTER

Think Ahead! HP's new DeskJet / DeskWriter 520 features 600 x 300 dpi printing for clear, sharp, professional-quality documents, plus HP's Resolution Enhancement technology for smoother, sharper text and graphics. Comes with the industry-leading 3-year warranty, plus HP's reputation for quality and reliability. This affordable new printer is the perfect solution to put you *ahead*!

NEW! $279.00

HP DESKJET 560C / DESKWRITER 560C PRINTER



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714

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Public discussion forums provide an arena for commentary and review relating to topics ranging from advice and parenting to sports and politics. If you want to talk about it, it's here. Various system users act as moderators to focus discussion. This is a great place to form and express your views. Here's your chance to be heard!

The file libraries primarily support IBM PC compatible programs. Almost 5,000 files are available, including MS-DOS and Windows games and utilities, sound files, virus protection and adult-oriented text and graphic files. Support for other platforms such as Mac and Amiga will become available as system expansion permits and users upload files. You may download as much as you like without limitation, with the exception of the adult-oriented material. Access to these files will require download and submission, to the Sysop, of a disclaimer form along with a copy of your driver's license. The system supports all common download protocols, including Zmodem for your file transfer pleasure. Since all of the modems support 14,400 bps, you'll be able to speed your way through downloads.

BBSes are a great place to meet people with similar interests. The matchmaking feature will allow you to compare your attributes to other system users. You'll encounter three categories of questionnaire forms to allow entry of information in general, personal and sexual areas. After you've provided answers to the matchmaking questionnaires, you'll be able to view and compare responses from other users. You may meet the man or woman of your dreams!

Regularly scheduled parties offer an opportunity to step beyond the keyboard to meet other system users. Regular events include Coffee House Night at local coffee houses, beach parties, user birthday parties, and "Karaoke—sing with the hits" Night at the Pierce Street Annex drinking establishment in Costa Mesa (event participation doesn't require you to sing). Just "hang out," meet the users and have a great time—the standard rules for all Eden functions. Event bulletins are emailed to all system users to keep everyone well informed of upcoming social events. This BBS is very socially active.

Subscription rates vary depending upon your term of commitment and usage time requirements. Rates range from $6 to $25 per month. Payment can be made by check or by calling a "900 number." Complete information for subscription terms is available from the Main Menu, Info and Payments section.

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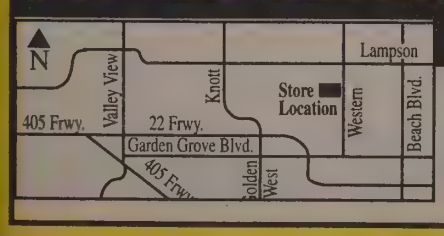

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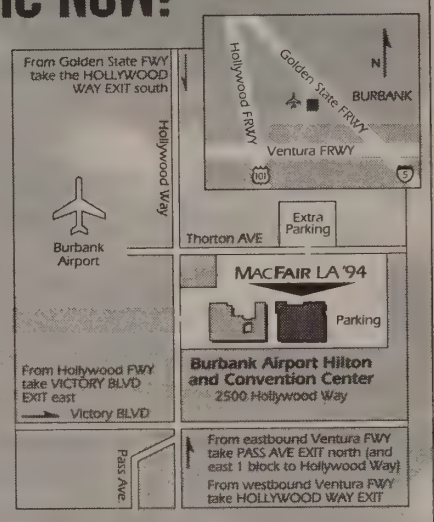
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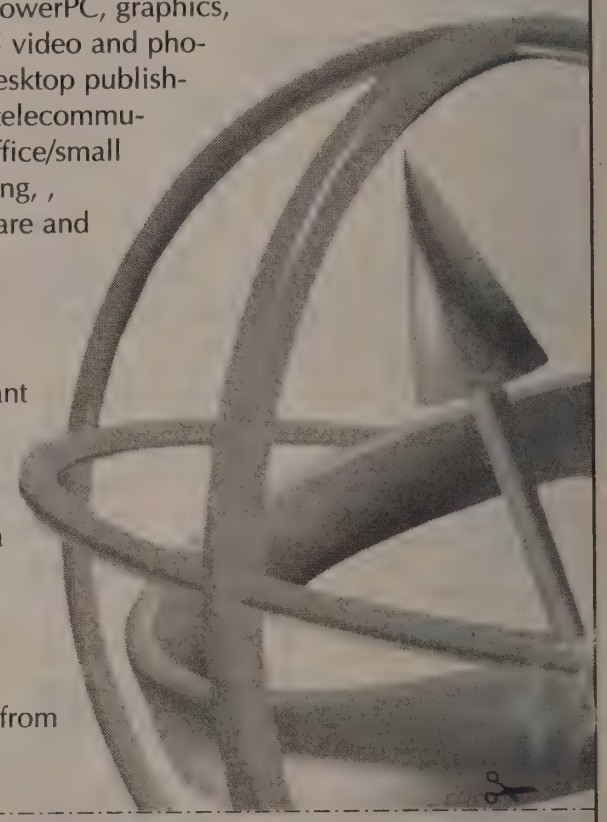

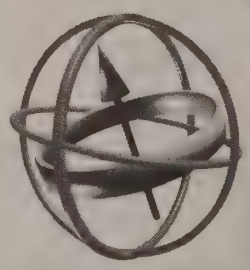

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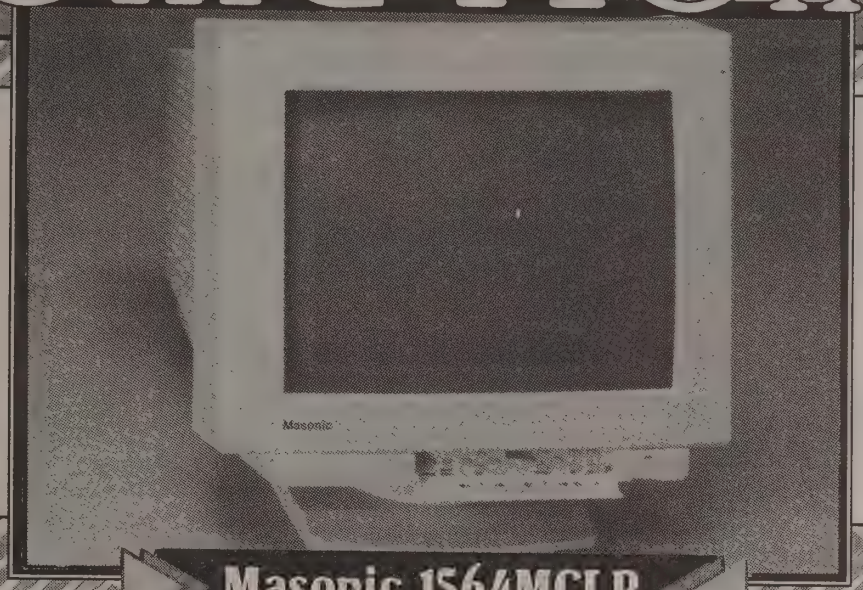

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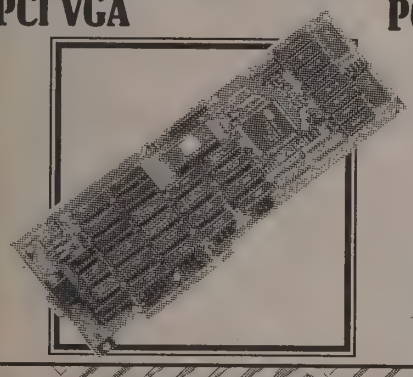

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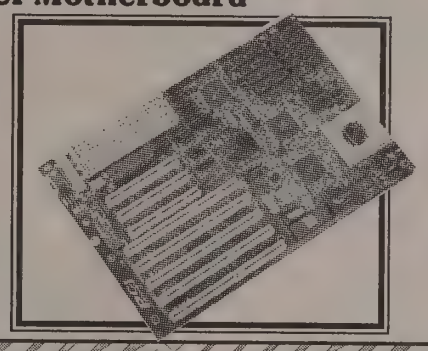

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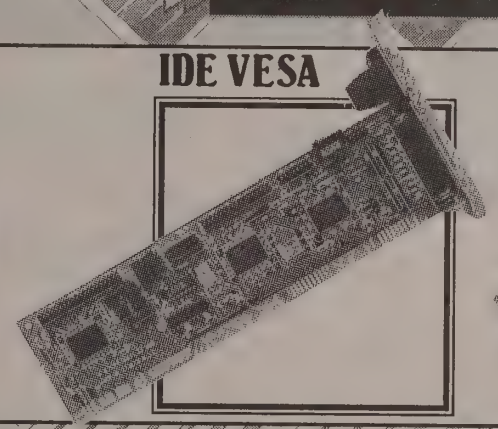

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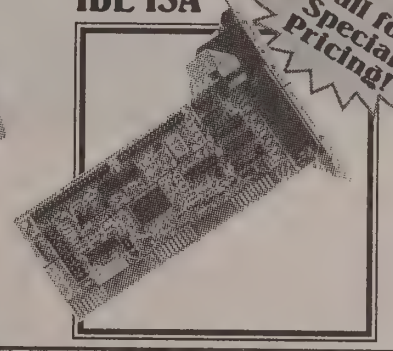

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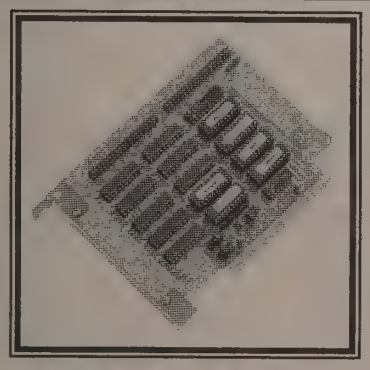

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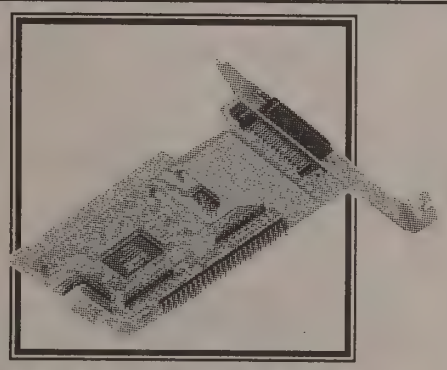

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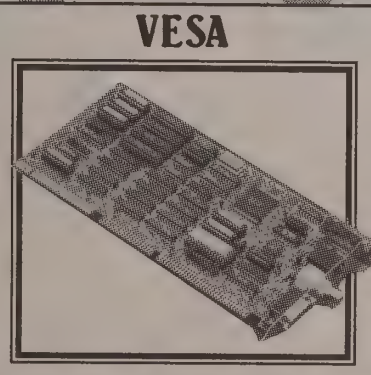

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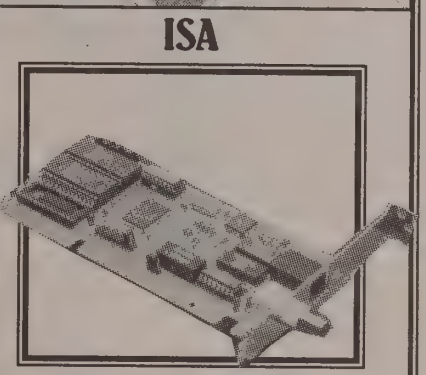

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Amiga User Group Of Long Beach. Meetings: 1st Thurs., 7:00 pm, 5373 E. Second St., Belmont Shores (in the Fire Station Bldg.). Call: Larry, (310)429-0752. [Exp. #123.]

ATUG—San Gabriel Valley. Meetings: last Tues., 7:00 pm, Michelangelo's Pizza, San Dimas; 3rd Sat., 11:00 am, 1st Southern Baptist Church, Temple City. Call: Steve, (818)285-6424. [Exp. #124.]

LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wednesday, 7:30 pm. Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Super SIGs, PD disks. Call: Kip Hammond, (310)390-3010. LAAUGLine BBS: (213)387-1002. [Exp. #123.]

APPLE

Champions Of The Mac Proletariat (CHOMP). Meetings: 4th Thurs., 7:30 pm, Cal Poly Pomona. Question and answer, raffle of useful software, opportunity to purchase disks. Call: Craig Richards, (909)985-7385. [Exp. #123.]

Original Apple Corps. Meetings: 2nd Sun., West LA area. Apple II and Mac user group. Support for beginners through experts. Call: Fred Duffy, (310)450-3336. [Exp. #128.]

ATARI

ATESIG—Atari 8-Bit SIG. Meetings: 145 Surf Pl., Seal Beach. Cooperative group for Model Railroad applications. Call: (310)430-5433. [Exp. #123.]

South Bay All Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, VFW Hall, 1865 Lomita Blvd., Lomita (1 block W of Western). All skill levels. Call: Danny or Mary, (310)834-0040. [Exp. #128.]

COMMODORE

Commodore Technical Users Group (C=TUG). Meetings: 4th Sunday, 1:00 pm, Senior Citizen Center, 170 S. Olive St., Orange. Public domain library, documents library, and magazine. Software and hardware help. Call: Daniel, (714)871-7570. [Exp. #128.]

South Bay Commodore Users Group. Meetings: 3rd Thurs., 7:00 pm. S.C.E Redondo Generating Station, 1100 Harbor Dr. (across from King Yatch Harbor). Support for 64/128 computers. Open to all users of Commodore Computer equipment and those who would like to receive or exchange information on programs, applications, or hardware. Call: Dave LeGalley, (310)324-8357. [Exp. #123.]

CORELDRAW

Corel (ACAD) User Group. Meetings: 2nd to last Tues., 7:00 pm, Glendale Federal Bank Building, 401 N. Blvd. Product demos, Q&A. Call: Art, (213)935-1958. [Exp. #124.]

LA Westside CorelDRAW User Group (independent). Meetings: 2nd Tues., 7:30 pm, 26th and Wilshire, Santa Monica. Speakers on design and printing, CorelDRAW tutorials, and favorite shareware. Call: Michael, (310)337-9347. [Exp. #128.]

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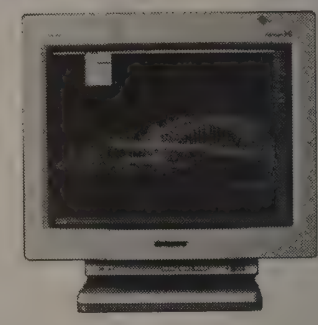

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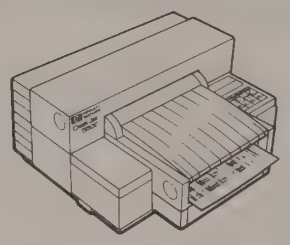

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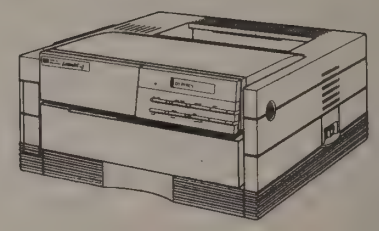

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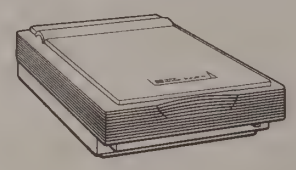

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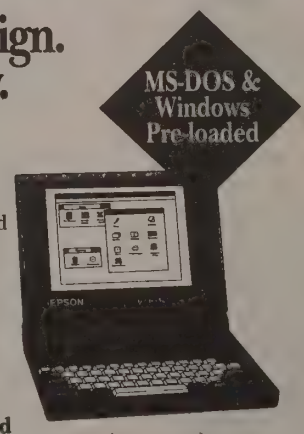

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USER GROUPS cont.

Center located behind the main city library, Torrance. Visitors welcome. Call: (310)329-2804. [Exp. #128.]

Long Beach IBM PC and Compatibles Users Group. Meetings: 3rd Wed., 7:00 pm, Masonic Temple, 1120 E. Market St., Long Beach. Novice and experienced welcome, BBS, public domain library, newsletter, SIGs. $25/year, $35 for families. Call: Jim Wells, (310)439-7114. [Exp. #128.]

Orange County IBM PC Users Group. Meetings: 2nd Tuesday, 6:30 pm. Computer Learning Center, 1240 S. State College Blvd., Anaheim. Speakers, software, newsletter. Open to public, all welcome. Call: (714)990-0580. [Exp. #123.]

Pasadena IBM User Group. Meetings: 3rd Wed., 7:00 pm, 2184 N. Lake Ave., Altadena. Speakers on hardware/software, SIGs, library, newsletter, and BBS. Call: Steve Bass, (818)791-1300. [Exp. #123.]

San Bernardino PC Users Group. Meetings: 1st Wednesday, Jack Brown Hall, Rm. 129, Cal State University, San Bernardino. Specializing in IBM and compatibles. Free admission. Call: Arthur Saltzman, (909)880-5755. [Exp. #127.]

South Bay All Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, VFW Hall, 1865 Lomita Blvd., Lomita (1 block W of Western). All skill levels. Call: Danny or Mary, (310)834-0040. [Exp. #128.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 3rd Thurs., 6:30 pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)523-1924. [Exp. #123.]

TUG-NET. Meetings: Every Thurs., 7:00 pm, Glendale Federal Bank, 7119 Topanga Cyn., Canoga Park. Ample parking. Call: (818)249-1629. [Exp. #126.]

Valley Computer Club. Meetings: 1st Wed., 7:00 pm, Burbank Board of Realtors Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Fee, $4. Call: Estella McClintock, (818)848-1948; or Grayce Hruda, (818)842-3707. [Exp. #128.]

KAYPRO

KAYOS Kaypro User Group. Meetings: 4th Mon. of even months, 6:00 pm, El Segundo Library, Mariposa and Richmond streets. Call: (310)379-8339. [Exp. #128.]

MACINTOSH

Champions Of The Mac Proletariat (CHOMP). Meetings: 4th Thurs., 7:30 pm, Cal Poly Pomona, grey building near administration building, rm. P2-7. Call: Craig Richards (909)985-7385 or Mitch Cohen, (909)598-5766. [Exp. #123.]

Los Angeles Macintosh Group (LAMG). Meetings: 3rd Tues., 7:30 pm, Dept. of Water & Power, 111 N. Hope St. Free meeting, everyone welcome. Call: (310)278-LAMG. [Exp. #128.]

Original Apple Corps. Meetings: West LA area. Apple II and Mac user group. Support for beginners through experts. Call: Fred Duffy, (310)450-3336. [Exp. #128.]

South Bay Apple Macintosh User Group. Meetings: Last Wed., 8:00 pm, El Camino College, MCSC Rm. 100, 16007 Crenshaw Blvd., Torrance. Call: (310)644-3315. [Exp. #128.]

West Orange County Macintosh User Group (WOCMUG). Meetings: last Tues., 7:00 pm, Emerson Elementary School, 2625 Josie, Long Beach (NE corner of Palo Verde and Willow). Come and join with other Mac users to share knowledge and experiences. Call: Lynn Goodrich, (714)892-8910; or Tony Muller (310)493-1240. [Exp. #127.]

PROGRAMMING

Software Toolsmiths. Meetings: Last Sat., 10:00 am, Joslyn Center, 339 Sheldon St., El Segundo, CA. Discussion and tutorials on programming, including C++, Forth, J, Smalltalk, algorithms, operating systems, and hardware. Neophytes welcome. Call: John LuValle, (818)797-1820; or Howard Rogers, (310)532-3342. [Exp. #124.]

ASSOCIATIONS

American Society For Information Science, Los Angeles Chapter. For information professionals concerned with a variety of topics: library automation, the information superhighway, etc. Call: Carolyn Loeffler, (310)825-4019. [Exp. #127.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6:00 pm. Prepaid reservation, $25, or at the door, $35. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #127.]

Software Council Of Southern California. A nonprofit trade association whose membership is comprised of software development organizations, as well as companies providing support and services to the local software industry. Call: Arlene Munson, (310)328-0043. [Exp. #127.]

Southern California Computer Society. Meetings: 4th Tues., 7:00 pm, Farmers & Merchants Bank, 12535 Seal Beach Blvd., Rossmoor, on southern side of Rossmoor shopping area. Call: Hank Burwash, (310)596-9670. We welcome all who are interested in computers. BBS and monthly newsletter. $15 dues per year. [Exp. #124.]

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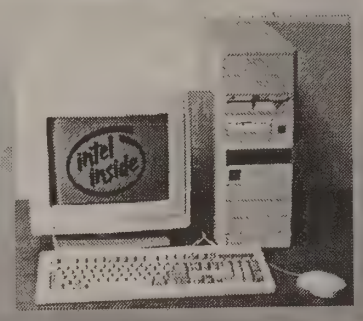

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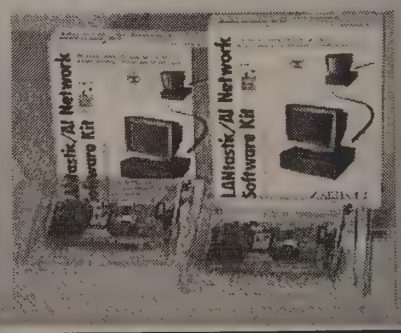

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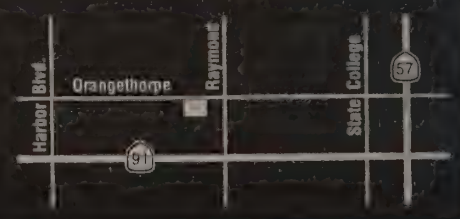

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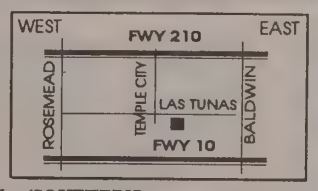

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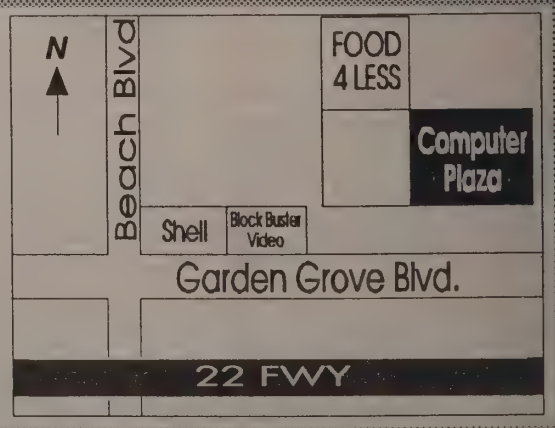

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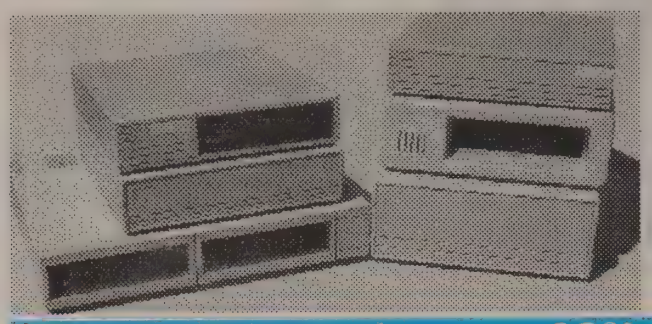

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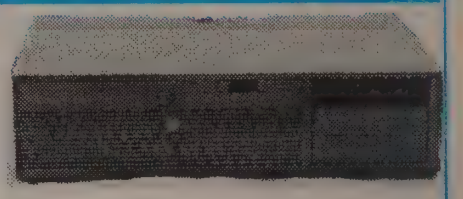

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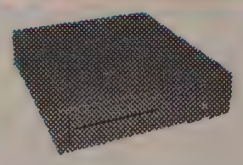

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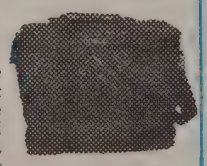

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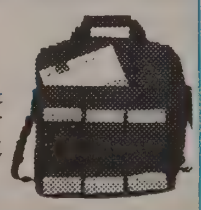

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A Multimedia Primer

continued from page 72

SCSI card are designed to accommodate an *internal* CD-ROM drive, only. There is no obvious way to attach an *external* CD-ROM drive like the Toshiba 3401. I didn't know this when I requested the review materials, but a technician at Creative Labs put me in touch with a cable manufacturer. Fortunately for me, Litz Info Tech, Inc. specializes in selling internal-to-external cables and connectors that integrate an external CD-ROM drive onto a SCSI bus. Their 50-pin Centronics cables let you set up the external CD-ROM as the last peripheral in the chain, or attach more devices through the CD-ROM drive's second SCSI socket. Once I had the correct cables from Litz, the Toshiba drive plugged right into the Adaptec Host Interface mounted on the Sound Blaster 16SCSI. The Adaptec 1520 chip included on the card is a true 16-bit SCSI-2 interface. It is compatible with OS/2 as well as with DOS and Windows, although it can't be used to boot up the system. (If all of your hard drives are SCSIs, you'll need a separate card for the boot drive, or else you'll need to boot from a floppy and load a device driver to start the system.)

In addition to serving as data reference tools and music/video entertainment devices, they are becoming the media of choice for installing/running operating systems and productivity applications.

Sound Basics

The Sound Blaster 16 handles four basic types of input. It can process dedicated CD tracks, play digitized sounds (stored on the hard disk in various formats), accept input through a MIDI port/play back recorded MIDI files, and it can also record/play input from a microphone or analog tape deck. Music directly embedded in CD-ROM media or generated from electronic MIDI files produces the best sound quality. Digitized sound files on the hard disk vary in quality with the recording method. 16-bit sounds recorded with a high sampling frequency sound better than 8-bit sounds recorded with a low sampling frequency. The higher the quality chosen for the recording, the more disk space the sound files consume—from 10MB per minute at the top down to 200/250K per minute on the low end. (Sampling sounds at the 44KHz recording rate requires a high-end 386 processor or better.) Creative Labs sells a compression chip for the Sound Blaster as an add-on enhancement. The Advanced Signal Processor chip compresses digital sound files by 400%, making it more practical to perform live sound mixing on the hard disk.

There are currently four Creative Labs sound card products:

•Sound Blaster 2.0—an 8-bit card that records mono only and will fit into an 8-bit slot on the bus.

•Sound Blaster Pro—an 8-bit card that records in stereo, but requires a 16-bit bus slot.

•Sound Blaster 16—a 16-bit card that records either 8-bit or 16-bit stereo/mono sounds and includes a proprietary interface for Panasonic CD-ROM drives. (Sound Blaster 16MCD contains three CD-ROM interfaces to support Panasonic, Mitsumi, or Sony drives.)

•Sound Blaster 16SCSI—same card as the Sound Blaster 16, but with an incorporated Adaptec 1520 SCSI host adaptor. (The host adaptor has no boot ROM—attached SCSI hard drives can't boot the system.)

The Sound Blaster 16 packages include

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Intel 486DX-50	1230
Intel 486DX2-66	1340

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- 4MB RAM
- VL-Bus IDE I/O Card
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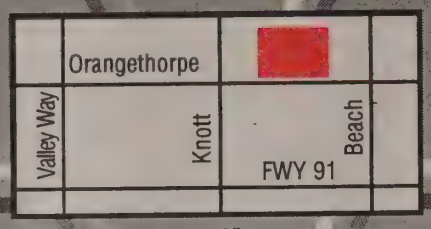

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HIGH PERFORMANCE

VESA Local Bus Systems

- 4MB RAM, 70ns
  INTEL Pentium overdrive ready
  3 VESA local bus slots
- 128K Cache
- 1.2MB and 1.44MB floppy drives
- 250MB IDE hard drive
- Fast 32bit VESA local bus SVGA card 1MB,
  16 million colors
- Fast 32bit VESA local bus IDE controller
- 14" SVGA monitor with .28 dot pitch
- 2 serial/1 parallel/1 game ports
- Minitower
- 101 enhanced keyboard

INTEL

Price	Regular	CASH
486SX-25MHz	$1050	$975
486SX-33MHz	$1100	$1025
486DX-33MHz	$1205	$1130
486DX2-66MHz	$1345	$1270

AMD

Price	Regular	CASH
486DX-40MHz	$1175	$1100
486DX2-66MHz	$1315	$1240

PCI Local Bus Systems

- 4MB RAM, 70ns
  INTEL Pentium overdrive ready
  3 VESA local bus slots
- 128K Cache
- 1.2MB and 1.44MB floppy drives
- 250MB IDE hard drive
- Fast PCI local bus SVGA card 1MB, 16 million colors
- Fast PCI local bus IDE controller
- 14" SVGA monitor with .28 dot pitch
- 2 serial/1 parallel/1 game ports
- Minitower
- 101 enhanced keyboard

INTEL

Price	Regular	CASH
486SX-25MHz	$1100	$1025
486SX-33MHz	$1250	$1175
486DX-33MHz	$1380	$1305
486DX2-66MHz	$1520	$1445

PENTIUM

Price	Regular	CASH
Pentium 60MHz	$2099	$1999
Pentium 66MHz	$2259	$2159

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Ultra-Fast PCI Systems

- 4 PCI slots, 4x16 bit ISA slots
- 256K Cache
- 8MB RAM, upgradable up to192MB
- 1.2MB & 1.44MB floppy drives
- 420MB IDE hard drive
- Fast PCI SVGA card with 1MB, 16 million colors
- Fast PCI IDE hard drive controller
- 15" SVGA color monitor, 1280x1024 N.I., flat screen digital controls, .28 dot pitch
- 2 serial/1 parallel/1 game port
- Mid-tower case
- 101 enhanced keyboard

Price	Regular	CASH
Pentium PCI 60MHz.	$2599.....	$2499
Pentium PCI 66MHz.	$2759.....	$2659

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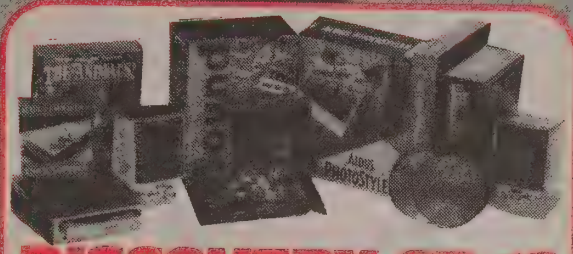
HIGH POWER Multimedia System

- 3 VESA local bus slots
- 128K cache
- 4MB RAM
- 1.44 floppy drive
- 250MB IDE hard drive
- Fast VESA local bus SVGA card with 1MB
- Fast VESA local bus IDE HD/FD controller
- 14" SVGA monitor, .28 dot pitch
- **Double-speed CD-ROM drive**
- **Sound Blaster 16 sound card**
- **A pair of speakers**
- 2 serial/1 parallel/1 game port
- Minitower
- 101 enhanced keyboard
- High resolution serial mouse

Price	Regular	CASH
INTEL 486DX2-66MHz	$1645	$1545
INTEL 486DX-33MHz.	$1525.....	$1425



DISCOVERY CD 16 MULTIMEDIA KIT

Sound Blaster 16 sound card
Creative Double Speed CD-ROM
Stereo Speaker

5 CD Titles
Aldus PhotoStyler SE
The Animals
Multimedia Encyclopedia
Just Grandma and Me
Where in World Is Carmen San Diego

$335

Motherboards (OK, with CPU)

	regular/CASH
INTEL PENTIUM PCI (4 PCI Local Bus slots)	
P5 66MHz with 258K cache	$1200/$1175
P5 60MHz with 256K cache	$1150/$1125
INTEL 486 PCI (3PCI local bus slots)	
486 DX2-66MHz with 128K cache	$640/$625
486 DX-33MHz with 128K cache	$505/$490
486 SX-33MHz with 128K cache	$370/$360
486 SX-25MHz with 128K cache	$320/$310
INTEL 486 VESA Local Bus (3 Vesa Local Bus slots, Pentium P24T ready)	
486 DX2-66Mhz with 128K cache	$485/$470
486 DX-33Mhz with 128K cache	$345/$330
486 SX-33Mhz with 128K cache	$210/$200
486 SX-25Mhz with 128K cache	$160/$155
AMD 486 VESA Local Bus (3 Vesa Local Bus slots, Pentium P24T ready)	
486 DX2-66MHz with 128K cache	$450/$435
486 DX-40MHz with 128K cache	$310/$300
486 VESA local bus motherboard with 128K cache, NO CPU	$95/$90
from 128K cache to 256K cache upgrade on motherboard	$20/$20
386 DX-40Mhz with 64K cache	$120/$115
386 SX-40Mhz	$80/$75
1MB SIMM modules	CALL
4MB SIMM modules	CALL

Add-On Cards

	regular/CASH
PCI Local Bus Add-on Boards	
Diamond ***Viper*** PCI, 2MB ***VRAM*** (16.7 mil. colors)	$390/$380
Cirrus Logic PCI, 5428 chipset, 1MB RAM (16.7 mil. colors)	$150/$145
IDE hard drive controller	$47/$45
VESA Local Bus Add-on Boards	
Diamond ***Stealth*** 24VLB, 1MB SVGA card (16.7 mil colors)	$175/$165
Diamond Viper VLB, 2MB VRAM SVGA card (16.7 mil colors)	$360/$350
Trident, 9400 chipset, 1MB SVGA card (16.7 mil. colors)	$80/$78
Cirrus Logic, 5424 chipset, 1MB RAM (16.7 mil. colors)	$80/$78
IDE controller with AT I/O, 2 serial, 1 parallel, 1 game ports	$30/$28
IDE cache controller (4HD/2FD, 512K to 16MB w/OK)	$190/$180
NE2000 Ethernet card, 10BaseT	$190/$185
ISA Add-on Boards	
Trident SVGA card with 1MB, 16 million color	$60/$57
16bit NE2000 Ethernet card	$80/$77
16bit NE2000 Ethernet card, 10BaseT	$85/$82
Super IDE (2HD/2FD with 2s, 1p, 1g)	$18/$17
Sound Blaster Pro Deluxe	$125/$121
Sound Blaster 16 Basic	$140/$130
9600/2400 baud internal fax/modem	$48/$45
14,400 baud internal fax/modem, v.32bis, v.42bis	$110/$100

Monitors

	regular/CASH
14" Impression 3 SVGA monitor, .28dp, 1024x768	$235/$225
14" Impression 3+ SVGA monitor, .28dp, 1024x768 N.I.	$260/$250
14" Impression 3n+ SVGA monitor, .28dp, 1280x1024 N.I, VESA	$280/$270
15" Impression 5 multi-freq. monitor, .28dp, 1280x1024 N.I, digital controls, flat screen, green PC ready	$375/$350
17" Impression 7 multi-freq. monitor, .26dp, 1280x1024 N.I, digital controls, flat screen, green PC ready	$700/$685
17" Sceptre CL-617 SVGA monitor, .26 dot pitch, flat screen, 1280x1024 N.I., flicker free 72Hz refresh, with digital auto-tracking	$750/$720

Keyboards

	regular/CASH
Lite-On 4100 101 enhanced keyboard (non-click)	$22/$21
AST KB-101 enhanced keyboard (non-click)	$40/$37
Focus 2001 101 keyboard (click, hard dustcover)	$42/$40
KME keymouse 101 keyboard (click, track-ball built-in)	$62/$60

Cases

	regular/CASH
CPU cooling fan (INTEL 486)	$18/$17
Mini-tower case (200w ps)	$45/$43
Mini-desktop case (200w ps)	$65/$62
Mid-tower case (230w ps)	$69/$67
Full-tower case (250w ps)	$89/$87

Floppy & Hard Drives

	regular/CASH
TEAC 1.2MB 5 1/4" FDD	$50/$48
TEAC 1.44MB 3 1/2" FDD	$42/$40
TEAC 2.88MB 3 1/2" FDD	$110/$105
Samsung 1.2MB 5/14" FDD	$46/$44
Samsung 1.44MB 3 1/2" FDD	$39/$37
170MB, Samsung 3171A IDE HD (13ms, 64K cache)	$190/$180
250MB, Samsung 3122A IDE HD (16ms, 64K cache)	$230/$220
340MB, Samsung 3172A IDE HD (13ms, 64K cache)	$265/$255
340MB, Conner CD-30340 IDE HD (12ms, 64k cache)	$275/$265
420MB, Conner CD-420A IDE HD (14ms)	$320/$310
245MB, Maxtor MX-7245A IDE HD (15ms, 64K cache)	$245/$235
340MB, Maxtor MX-7340A IDE HD (13ms)	$285/$275
535MB, Maxtor LXT-535A IDE HD (12ms)	$470/$460
1.0 GIG, Conner fast SCSI-2 HD (12ms)	$775/$745
250MB, Conner 250 Tape Backup System	$160/$155
Panasonic **Double spin** CD-ROM drive (300K/s, 320ms)	$190/$180

Printers

	regular/CASH
Hewlett Packard DeskJet 500C Color InkJet printer	$395/$380
Hewlett-Packard DeskJet 560C Color InkJet printer	$550/$530
High capacity print cartridge for HP 500 family	$34/$33
Hewlett Packard LaserJet 4 Plus	$1425/$1375
Hewlett Packard LaserJet 4P	$940/$910
Hewlett Packard LaserJet 4L	$650/$630
Panasonic KX-P2123 Quiet Printer (24pin/240cps/80col/color opt)	$240/$230
Color kit for the above printer	$45/$43

Mouse/Trackball

	regular/CASH
Serial mouse, M.S. compatible, 3 buttons	$20/$19
TrueDox Trackball (50-800 dpi, 3 button)	$35/$33
Microsoft serial mouse	$53/$50
Microsoft bus mouse	$65/$63

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Note: The above prices do not include S/H and are guaranteed lowest prices of their type. Regular prices reflect cash discount. Please call for latest and greatest items and prices.

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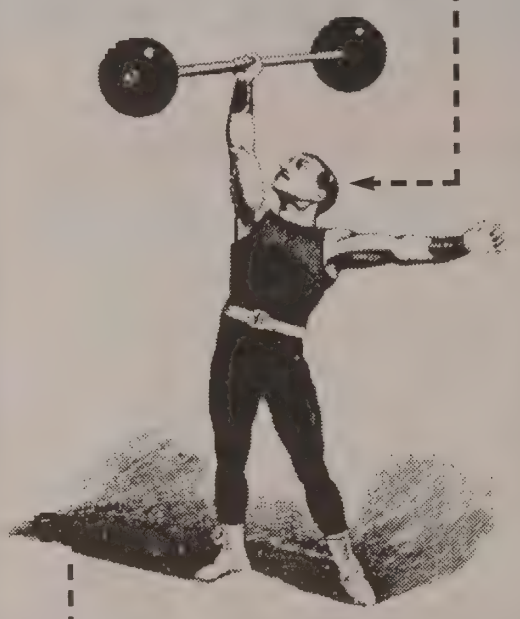

READ

MICROTIMES

A Multimedia Primer *continued*

Grolier's Multimedia Encyclopedia on CD-ROM, PC-Animate & HSC InterActive Authoring software. All of the Sound Blaster models include a variety of sound-editing utilities for DOS and Windows, and are sold with and without accompanying CD-ROM drives. (The 16SCSI can be purchased in a kit that includes an NEC triple-speed drive, Aldus Photostyler, and tons of other CD-ROM software.)

Note, the retail prices quoted for all of the products listed in this review are those provided by the manufacturers. Street prices on some items (particularly the Toshiba CD-ROM drive) will be considerably less. ■

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RESOURCES:

Toshiba X3401 SCSI CD-ROM DRIVE, $700 External/$585 Internal (incl 8-bit SCSI Host Adaptor)
Toshiba Disk Products Division
9740 Irvine Blvd.
Irvine, CA 92718
(714)457-0777

Future Domain SCSI Value Pack, $84 (free if you purchase one of their 16-bit controller cards)
Future Domain, Inc.
Irvine, CA
(714)253-0400

Corel PowerPak, $99
Corel Corp.
1600 Carling Ave.
Ottawa, Ontario K1Z8R7, Canada
1-800-836-7274

Sound Blaster 2.0, $79
Sound Blaster Pro, $115
Sound Blaster 16, $199
Sound Blaster 16SCSI, $279 (other options extra)
Creative Labs, Inc.
PO Box 361884
Milpitas, CA 95036
(408)428-6600

EZCon SCSI External-to-internal cable kits, $37.50/$49.50
Litz Info Tech, Inc.
4300 Stevens Creek Blvd., Ste. 129
San Jose, CA 95129
(408)261-2891

Dynamic Memory Control (DMC35.ZIP)
Adlersparre & Associates, Inc.
501-1803 Douglas St.
Victoria, BC V8T 5C3, Canada
(604)384-1118 (BBS: 604/384-3564)

How to Manage Microsoft's CD-ROM EXTENSIONS

AN MS-DOS SYSTEM RUNNING DISK compression software, SCSI device drivers, a fax modem, and other TSR-utilities may suffer a significant drop in available memory after loading the Microsoft CD-ROM extensions bundled with MS-DOS 6/6.2. Some SCSI drivers permit themselves to be loaded above 640K, but often there is no room in upper memory for CD-ROM drivers after the rest of Config.sys and Autoexec.bat has been loaded.

Dynamic Memory Control is a shareware utility that allows you to two-platoon your CD-ROM drivers. DMC leaves a small placeholder in either conventional or upper memory. It can load DOS block device drivers from batch files or at the command line. If you want to reclaim more memory you can temporarily unload the CD-ROM extensions, and reload them when you want to access the CD-ROM drive. The following is a sample batch file that uses Dynamic Memory Control's NOTE and LDEVICE utilities to toggle SCSI and CD-ROM drivers for the Toshiba X3401 drive and Future Domain host adaptor in and out of memory.

```
LOADCDR.BAT
loadhigh note
loadhigh ldevice c:\mdscd_fd.
    sys/D:MSCD001 /N:1
note
loadhigh c:\dos\MSCDEX
    /D:MSCD001
```

The DMC FREENOTE utility removes both the SCSI and CD-ROM drivers from upper memory, freeing up approximately 45K. (Note, the Future Domain SCSI driver can be loaded and removed from upper memory as many times as you like without causing operating system conflicts. Not all SCSI drivers will permit this. If the MS-DOS 6 "Loadhigh" statements are omitted, then this batch file can be used to load and unload the drivers in conventional memory.)

To regain access to the CD-ROM after running FREENOTE, run LOADCDR.BAT again.

—Lenny Bailes

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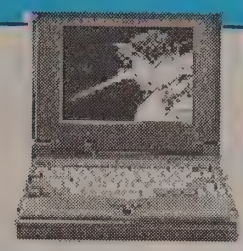
NP7500

- Intel SL Enhanced 486 CPU 8K Cache
- 4MB RAM Exp. to 8/12/20/36MB
- 2.5" HD 250/340/520MB Removable
- VLB 1MB Video RAM & IDE
- PCMCIA Type III
- Built-in Sound Card, Speaker, Mic
- NiMH Battery
- Microsoft DOS 6.21

250MB	Mono	Dual Scan Color	Active Color
486SX-33	$1675	$2205	$3205
486DX-33	1810	2340	3340
486DX2-66	1990	2520	3520
486DX4-100	2220	2750	3750

340MB HDD ..... +$100
520MB HDD ..... +$290
4/16MB RAM Card ..... +$210/895
Docking Station $460

NP9200

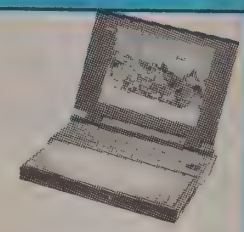


- Intel SL Enhanced 486 CPU 8K Cache
- External 128K Cache
- 4MB RAM Exp. to 8/12/20/36MB
- Removable 2.5" HD 250/340/520MB
- 32 Bit VL-Bus Video 1MB RAM
- PCMCIA Type IV Slot
- Built-in Sound Card, Speaker, Mic
- 2 NiMH Hot-Swap Battery
- 25mm Center Trackball
- Microsoft DOS 6.21

250MB	Mono	Dual Scan Color	Active Color
486SX-25	$1675	$2205	$3205
486DX-33	1860	2390	3390
486DX2-66	2040	2570	3570
486DX4-100	2270	2800	3800

340MB HDD ..... +$100
520MB HDD ..... +$290
4/8/12/16MB Card ..... +$210/400/57[illegible]
Docking Station ..... $[illegible]

NP700



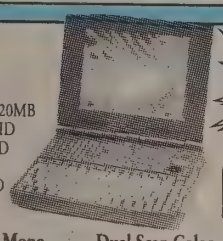
Local Bus

- Intel 486 CPU w/8K Cache
- 4MB RAM Exp. to 8MB or 16MB
- 2.5" HD 120/340/520MB HD
- 3.5" FD 1.44 FDD
- PCMCIA Type II
- Microsoft DOS 6.21
- 10" Mono or 10" Color LCD
- Built-in Trackball Mouse
- Microsoft DOS 6.2

250MB HDD	Mono	Dual Scan Color
486SX-25	$1435	$1965
486SX-33	1475	2005
486DX -33	1625	2155
486DX2-66	1805	2335

120MB HDD ..... $[illegible]
340MB HDD ..... +$[illegible]
520MB HDD ..... +$[illegible]
4, 12MB RAM Card ..... $[illegible]
Docking Station ..... $[illegible]

NP800



Byte Magazine October '93 Rated NP843T the #1 Notebook Computer Overall!

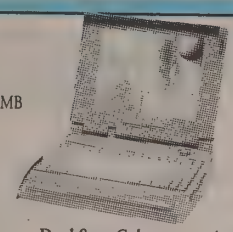
Local Bus

- Intel 486 CPU w/8K Cache
- 4MB RAM Exp. to 8MB or 20MB
- 2.5" HD 120/340/520MB HD
- Local Bus Display & IDE HD
- PCMCIA Type III
- 10" Mono or 10" Color LCD
- Built-in Trackball Mouse
- Microsoft DOS 6.21

250MB HDD	Mono	Dual Scan Color	Active Color
486SX-33	$1530	$2060	$3060
486DX-33	1675	2205	3205
486DX2-50	1725	2255	3255
486DX2-66	1855	2385	3385

120MB HDD $70
340MB HDD ..... +$100
520MB HDD ..... +$290
4/16MB RAM Card $210/895
Docking Station $460

NP8200

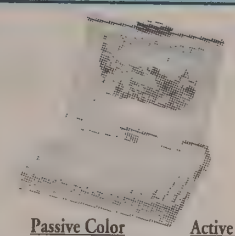


- Intel 486 CPU w/8K +128K Cache
- 4MB RAM Exp. to 8MB, 16MB or 20MB
- 2.5" HD 120/340/520MB HD
- Local Bus Display
- PCMCIA Type II
- 10" Mono or 10" Color LCD
- Built-in Trackball Mouse
- Microsoft DOS 6.21

250MB HDD	Mono	Dual Scan Color	Active Color
486SX-25	$1515	$2045	$3045
486DX-33	1690	2220	3220
486DX2-50	1740	2270	3270
486DX2-66	1870	2400	3400

120MB HDD $70
340MB HDD ..... +$100
520MB HDD ..... +$290
4, 12, 16MB RAM Card $210/620/895
Docking Station $435

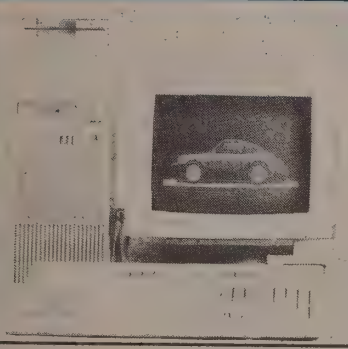
NP200



- Intel 486 Serial CPU
- 4MB RAM Exp. to 16MB
- 3.5" HD 170/200/340/520MB HD
- 3.5" FD, 1.44 FDD, 2S, 1P
- AT-Bus I/O for Docking
- 10" Mono or 8.5" Color LCD
- Built-in Trackball Mouse PS/2
- Microsoft DOS 6.21

250MB HDD	Mono	Passive Color	Active Color
486SX-25	$1330		
486DX-33	1530	$2100	$2930
486DX2-50	1550		
486DX2-66	1710	2280	3110

200MB HDD $20
340MB HDD ..... +$60
520MB HDD ..... +$260
4/12MB RAM Card $255/750
Docking Station $190



ISA System

- 128K Cache
- 4MB RAM
- 1.44FDD
- 170MB HDD
- SVGA Card 512K
- .28 SVGA Monitor Int.
- Mini Tower Case
- 230W Power Supply
- 101 Keyboard
- Mouse

Upgrade 486 Socket Ready!

VESA System

- 256K Cache
- 4MB RAM
- 1.44FDD
- 170MB HDD
- V/L Bus IDE I/O
- VL Bus SVGA Card 1MB
- .28 SVGA Monitor Int.
- Mini Tower Case
- 230W Power Supply
- 101 Keyboard
- Mouse

Upgrade Pentium Socket Ready!

ISA System		VESA System	
386DX-40	$825	486DX-33	$1095
486SX-25	870	486DX-40	1110
486DX-33	1025	486DX2-50 BEST BUY	1069
486DX-40	1040	486DX-50	1195
486DX2-50 BEST BUY	999	486DX2-66	1245
486DX2-66	1175		

GREEN PC AVAILABLE

Hard Drive Upgrade:

210MB	Add $25	420MB	Add $104
245MB	Add $49	520MB	Add $214
345MB	Add $84		

Monitor Upgrade:

CTX 14" .28NI	Add $45
CTX 15" .28 NI	Add $170

MONTHLY SPECIALS

PET-100 PCMCIA Ethernet LAN Adapter (2 in 1)	$215
PET-101 PCMCIA Ethernet LAN Adapter (10 Base T)	$185
PET-102 PCMCIA Ethernet LAN Adapter (10 Base 2)	$[illegible]85
PFM-942 PCMCIA Fax/Modem (96/48/24 bps)	$[illegible]35
PFM-144 PCMCIA Fax/Modem (14400 bps)	$[illegible]60

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Silver Class
Sound Gold 16 Sound Card Amplified Speakers $99

Gold Class
Panasonic 562 Double Speed CD-ROM
Sound Blaster Pro 16 Deluxe, Amplified Speakers
5 CD Titles $329

Diamond Class
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Sound Blaster SCSI II 16 Deluxe
Joystick
Microphone
Amplified Speakers
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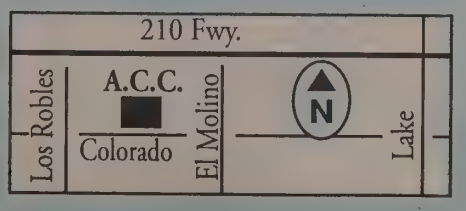

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FOUNTAIN VALLEY
(714) 546-3110

ESSENCE 486/33 VLB Bus

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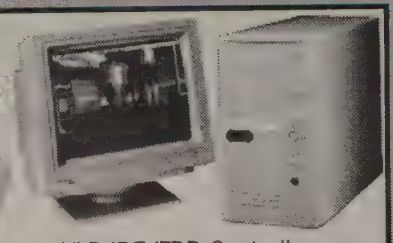
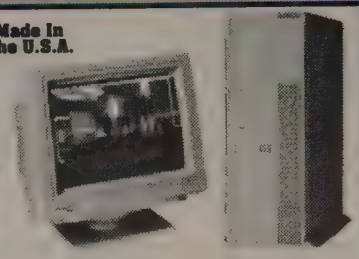


- Opti 486VLB MB w/128K w/ 2VLB Slots
- **Intel 486SX-33Mhz CPU**
- **4Mb RAM, 210Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Trident 9200 VLB SVGA 1Mb Graphics Accelerator
- **14" 1024x768 SVGA Monitor**
- 101 Key Enhanced Keyboard
- CS-609T Mini-Vertical Case w/230Watt Power Supply

Vega 486/50 VLB Bus

Made In The U.S.A.

$1399



- Vega 486VLB M/B w/256K Cache/ZIF
- **AMD 486DX2-50Mhz CPU**
- **4Mb RAM, 250Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- WD90C33 VLB 1Mb Graphics Accelerator
- **14" 1024x768 SVGA Non-Interlaced Monitor**
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply

$1199

Kenitec NP-602 Notebook

Features:
Intel SL Enhanced 486SLC-33Mhz CPU, 4mb RAM, 130mb HDD,Built-in "Palm Rest" Trackball, 10" 32 Gray Scale VGA Compatible LCD Display, Internal 1.44Mb Floppy Disk Drive, Complete w/ Carrying Case & Charger.

ESSENCE 386DX 486DLC

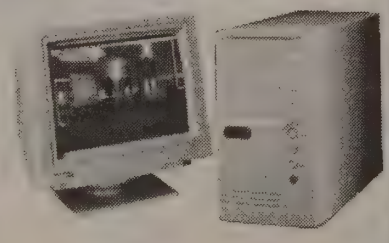
386DX-40 .. $ 709
486DLC-40 . $759

- Opti 386 Motherboard w/ 128K Cache, **AMD 386/40 or TI 486DLC/40 CPU**
- **4Mb RAM, 210Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Trident 8900 SVGA 1Mb Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-609T Mini-Vertical Case w/230Watt Power Supply
- **Monitor Optional.....**

IBM 486/66 VLB

Made In The U.S.A.

$899



- IBM VLB Motherboard w/ IBM 486 SLC2-66Mhz CPU & Math- Coprocessor
- **4Mb RAM, 210Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Trident T9400 VLB 1Mb SVGA Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-609T Mini-Vertical Case w/230Watt Power Supply
- **Monitor Optional.....**

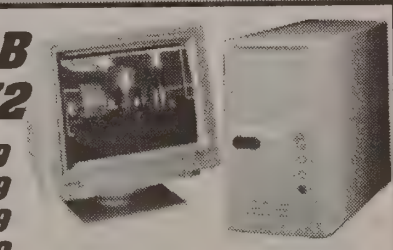
MITAC 486/25 Subnotebook

$1399

Features:
Intel SL Enhanced 486SX-25Mhz CPU, 4mb RAM, 130mb HDD,Built-in "Palm Rest" Trackball, 9.5" 64 Gray Scale Dual Scan LCD Display, Removable Drive System, **2 PCMCIA Slots.**

ESSENCE 486 VLB SX/DX/DX2

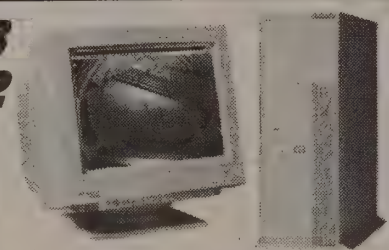
486DX2-50 ..... $969
486DX-40 ..... $939
486DX-33 ..... $909
486SX-33 ..... $839
486SX-25 ..... $819



- Opti 486 Motherboard w/ 128K Cache & CPU
- **4Mb RAM, 250Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Trident T9400 VLB SVGA 1Mb Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-609T Mini-Vertical Case w/230Watt Power Supply
- **Monitor Optional.....**

ESSENCE 486 VLB DX/DX2

486DX2-66 ... $1169
486DX-50 ..... $1249
486DX2-50 ... $1069
486DX-40 ..... $1039
486DX-33 ..... $1009



- Opti 486 Motherboard w/ 256K Cache, ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- WD90C33 VLB SVGA 1Mb Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply
- **Monitor Optional.....**

MITAC 486/33 Color $1788

Features:
Intel 486SX
33Mhz CPU, 4mb RAM, 120mb HDD, 5.9lbs, Digital Controls, Passive Matrix Color, Windows Accelerator, Built-In Trackball, Optional Mini-Docking Station

Acer AOpen 486 VLB Bus

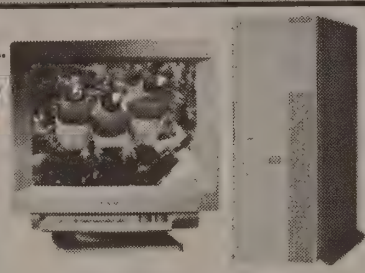
486DX2-66 ... $1159
486DX2-50 ... $1059
486DX-40 ..... $1029
486DX-33 ..... $999
486SX-33 ..... $929

- AOpen 486 Motherboard w/ 256K Cache, ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Acer 101 Key Keyboard
- Acer AOpen Mini-Vertical Case w/230Watt Power Supply
- **Monitor Optional.....**

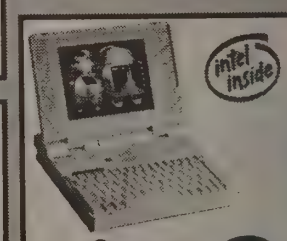
Vega 486 VLB Bus

Made In The U.S.A.

486DX2-66 .. $1289
486DX2-50 ... $1189
486DX-40 ..... $1159
486DX-33 ..... $1129



- Vega 486VLB M/B w/256K Cache/ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- **Orchid Kelvin 64 VLB 1Mb Graphics Accelerator**
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply
- **Monitor Optional.....**



MITAC 486/25 Mono $1288

Features:
Intel 486SX
25Mhz CPU, 4mb RAM, 120mb HDD, 5.9lbs, Digital Controls, Mono VGA, Built-In Trackball, Optional Mini-Docking Station

AIR 486 VLB Bus

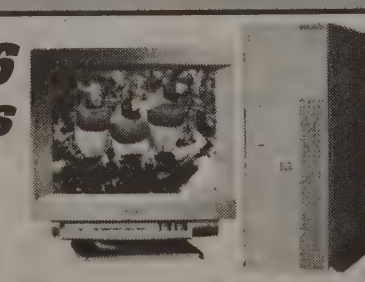
Made In The U.S.A

486DX2-66 ... $1309
486DX2-50 ... $1209
486DX-40 ..... $1179
486DX-33 ..... $1149
486SX-33 ..... $1079

- AIR 486VLB M/B w/256K Cache/ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- **Orchid Kelvin 64 VLB** SVGA 1Mb Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply
- **Monitor Optional.....**

Acer AOpen 486 PCI Bus

486DX2-66 ... $1329
486DX2-50 .. $1229
486DX-40 ..... $1199
486DX-33 ..... $1169



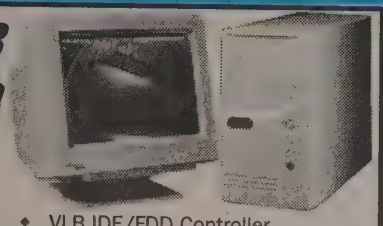
- Acer 486PCI M/B w/256K Cache/ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- PCI IDE/FDD Controller
- **NEW! Hercules Stingray PCI** SVGA 1Mb Accelerator
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply
- **Monitor Optional.....**

MITAC 486/25 Mono $1288

Features:
Intel 486SX
25Mhz CPU, 4mb RAM, 120mb HDD, 5.9lbs, Digital Controls, Mono VGA, Built-In Trackball, Optional Mini-Docking Station

Coming Soon "ESSENCE Anaheim"

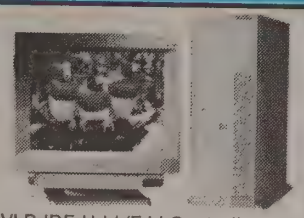
ESSENCE 486 VLB Multi-Media



486DX2-66 ... $1869
486DX2-50 ... $1739
486DX-33 ..... $1659
486SX-33 ..... $1599
486SX-25 ..... $1569

- Opti 486 Motherboard w/ 256K Cache, ZIF & CPU
- **4Mb RAM, 250Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- WD90C33 VLB SVGA 1Mb Graphics Accelerator
- VLB IDE/FDD Controller
- **Optiquest 2000DX 15" SVGA NI Digital FST Monitor**
- Pro-Audio Spectrum 16 16bit Sound Card
- Sony 33A (2X) Speed CD-Rom
- CS-150 Speakers w/4CD Titles
- 101 Key Enhanced Keyboard
- CS-609T Mini-Vertical Case w/230Watt Power Supply

Vega 486 VLB Multi-Media



486DX2-66 .... $2469
486DX2-50 .... $2339
486DX-40 ..... $2309
486DX-33 ..... $2259

- VEGA 486 Motherboard w/ 256K Cache, ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- **Orchid Kelvin 64 VLB 1Mb Graphics Accelerator**
- VLB IDE Hdd/Fdd Controller
- **Mitac L1564PD 15" SVGA NI Digital On Screen FST Monitor**
- Pro-Audio Spectrum 16
- **FAST** Toshiba 3401 Internal 200ms, (2X) Speed CD-Rom
- CS-800 Speakers w/6CD Titles
- 101 Key Enhanced Keyboard
- CS-TK970 Mid-Vertical Case w/200Watt Power Supply

Panasonic Office Automation OA

Double Speed

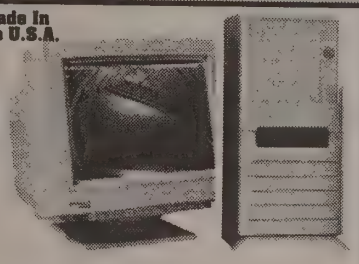
Panasonic's **FAST** Internal CD-ROM, (2X) Double Speed, 320ms Access, Caddyless.

CD-ROM Only ... $139
CD-Rom with Sound Blaster 16 & 2 Games ... $269

MICRONICS COMPUTERS INC.

Made In The U.S.A.

486 VLB Bus

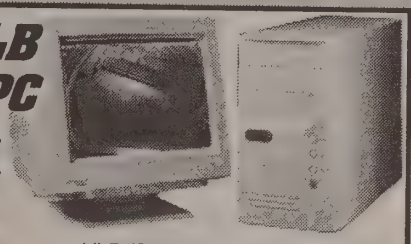


486DX2-66 ... $1559
486DX2-50 ... $1409
486DX-33 ..... $1399
***486SX-33 ... $1189**

- MX-30 486VLB M/B w/ 256K Cache, ZIF & CPU
- **4Mb RAM, 420Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Hercules Dynamite VLB 2Mb Graphics Accelerator
- 101 Key Enhanced Keyboard
- CS-230 Mid-Vertical Case w/230Watt Power Supply
- **Monitor Optional...**

* 486SX-33 Systems Have ***No*** Cache Memory

ESSENCE 486 VLB Green PC



486DX4-100 . $2095
486DX4-75 ... $2015
486DX2-66 ... $1689
486DX2-50 ... $1579
486DX-33 ..... $1524

- **GREEN** 486 MB w/256K Cache, ZIF & CPU
- **4Mb RAM, 340Mb HDD**
- TEAC 1.2Mb & 1.44Mb
- 2 Ser./1 Par./1 Game
- VLB IDE/FDD Controller
- Acer Aopen L28 **GREEN** 1Mb Graphics Accelerator
- **Optiquest 2000DS 15" SVGA NI Digital GREEN Monitor**
- 101 Key Enhanced Keyboard
- CS-609G **GREEN** Mini-Vertical Case w/230Watt **GREEN** P.S.

Canon

Quality Ink Jet Printers

BJ-200E Laser Quality Output & 248CPS At a Great Price.

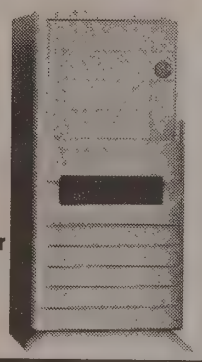
$289

BJC-600 Laser Quality Output + Full Color Printing. One of The Markets Hottest Sellers.

$569

Intel Pentium 60Mhz PCI Bus

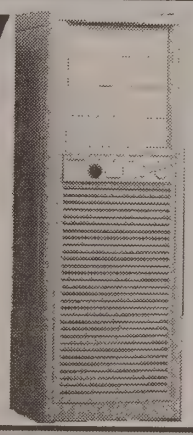
$2119



- Intel Pentium PCI Mbd & Intel Pentium 60Mhz CPU w/256K Cache
- **8Mb RAM, 540Mb HDD** w/PCI Controller
- TEAC 1.2Mb & 1.44Mb Floppy Drives
- 2 Ser./1 Par./1 Game
- **Orchid Kelvin 64 PCI Graphics Accelerator w/ 2Mb 64-Bit Addressed Memory**
- CS-230-Mid-Vertical Case w/250W. P.S. & Two Super Cooling Fans
- 101 Key Enhanced Keyboard

ESSENCE Pentium VLB/PCI

Pentium-66Mhz . $ 3299
Pentium-60Mhz ... $3199



- Opti Pentium VLB/PCI Mbd & Intel Pentium CPU w/512K Cache
- **8Mb RAM, 1.0Gb HDD w/ Q-Logic *FAST*-SCSI PCI SCSI-2 Controller**
- TEAC 1.2Mb & 1.44Mb Floppy Drives
- **Diamond Viper PCI Graphics Accelerator (Super Fast! Over 80 Million Winmarks)**
- CS-300GTS Full-Vertical Case w/300W. P.S. & Two Super Cooling Fans
- 101 Key Enhanced Keyboard

ATi TECHNOLOGIES INC

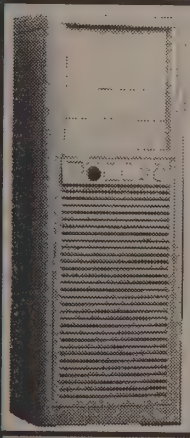
$139 Graphics Wonder

SVGA Accelerator

Features: 1Mb Dram, True 24-Bit Color, Ultra Fast Mach 32 Accelerator Chip, Up to 1280 x 1024 Res., All For Only $139. After ATI's $10. Mail-In Rebate.

MICRONICS COMPUTERS INC.

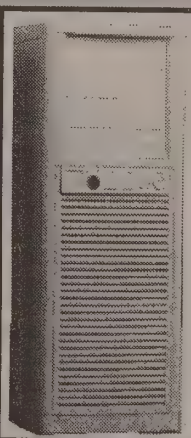
Pentium 60 PCI $3099



- Micronics Pentium PCI Mbd & Intel Pentium 60Mhz CPU w/256K Cache
- **8Mb RAM, 540Mb FAST SCSI-2 HDD w/ QLogic *FAST*-SCSI PCI SCSI-2 Controller**
- TEAC 1.2Mb & 1.44Mb Floppy Drives
- **ATi Mach 64 Graphics Pro Turbo Mach 64 PCI 2Mb Graphics Accellerator**
- CS-300 Full-Vertical Case w/300W. P.S. & Two Super Cooling Fans
- 101 Key Enhanced Keyboard

American Megatrends

Pentium 60 PCI $3099



- AMI Pentium PCI Mbd & Intel Pentium 60Mhz CPU w/256K Cache
- **8Mb RAM, 540Mb FAST SCSI-2 HDD w/ QLogic *FAST*-SCSI PCI SCSI-2 Controller**
- TEAC 1.2Mb & 1.44Mb Floppy Drives
- **ATi Mach 64 Graphics Pro Turbo Mach 64 PCI 2Mb Graphics Accellerator**
- CS-300 Full-Vertical Case w/300W. P.S. & Two Super Cooling Fans
- 101 Key Enhanced Keyboard

Smart One

14,400bps Internal Fax/Modem

$89

Smart One Internal 14400bd Fax & 14400bd Modem Features v.32bis, v.42bis, MNP Error Correction

WESTERN DIGITAL

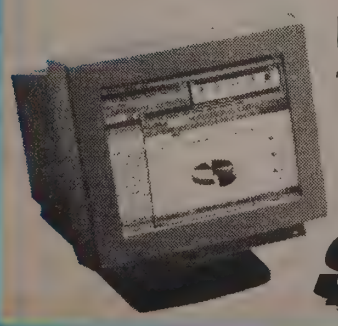
HDD Blowout

420Mb IDE.. $289
540Mb IDE . $389

Both Caviar Drives Have Onboard Cache & Fast 13ms Access Times

While Supplies Last

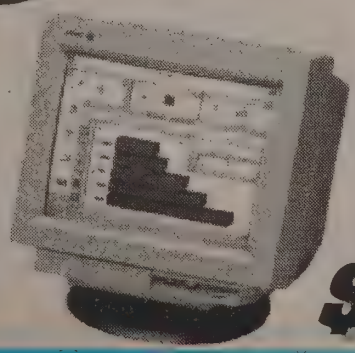
MiTAC Hi-Resolution Monitors



M1450PD 14" SVGA NI

1024x768 Max. Resolution, Non-Interlaced, Digital On-Screen Programming, Power Saving **Green** Monitor

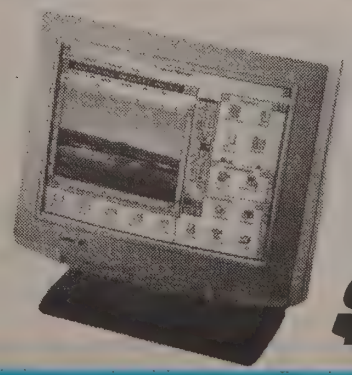
$248



L1564PD 15" SVGA NI

1280x1024 Max. Resolution, 76Hz Non-Interlaced, Digital On-Screen Programming, Power Saving**Green**Monitor w/ MPR-II Low Radiation

$375



L1782 17" SVGA NI

1600x1280 Max. Resolution, 76Hz Non-Interlaced, Digital On-Screen Programming, Power Saving**Green**Monitor w/ MPR-II Low Radiation

$698

Excellent Service! Comfortable Showrooms! One on One Customer Service! Best Possible Price! Name Brands!

Monitors

AMDEK 432N 14" MonoVGA (Amber/White) **$125**

ACER

34T 14" SVGA NI (1024x768,.28dp) **$265**
56L 15" SVGA NI FST (1024x768,.28dp) **$369**
76i 17" SVGA NI FST(1280x1024,.28dp) **$689**

CTX

5439A 14" SVGA (1024x768,.39dp) **$210**
5468ES 14" SVGA (1024x768,.28dp) **$245**
1451 14" Full -Screen NI (1024x768,.28dp) .. **$262**
1461LR 14" NI (1024x768, 72Hz refresh) **$289**
1560LR 15" Digital NI (1024x768,.28dp) **$368**
1760DF 17" Digital NI (1280x1024,.28dp) **$645**
1760LR 17" Digital NI (1280x1024,.28dp) **$675**

Infinity

IT1400VG 14" Mono VGA (Paper White) **$99**
IE1439SV 14" SVGA (1024x768,.39dp) **$195**
IK1439SV 14" Full SVGA (1024x768,.39dp) .. **$205**
IE1428SV 14" SVGA (1024x768,.28dp) **$230**
IK1428SV 14" Full SVGA (1024x768,.28dp) .. **$239**
IE1428N4 14" Full SVGA NI (1024x768,.28dp) . **$245**
IK1428N4 14" Full SVGA NI (1024x768,.28dp) . **$255**
IS1528N5 15" FST SVGA NI (1024x768,.28dp) . **$325**
IK1528DN6 15" Digital FST (1280x1024,.28dp) **$385**
IE1728D6 17" FST SVGA NI (1280x1024,.28) **$625**
IK1726DN7 17" Digital FST (1600x1200,.26dp) **$685**

Digiview

HR-1401 14" SVGA (1024x768,.39dp) **$189**
HR-1428 14" SVGA (1024x768,.28dp) **$213**
HR-1431 14" SVGA NI (1024x768,.28dp) **$239**

MAG

LX-1450 14" SVGA NI (1024x768,.28dp) **$289**
LX-1564 15" SVGA NI (1280x1024,.28dp) **$369**
MX-15F 15" Digital NI (1280x1024,.28dp) **$449**
MX-17F 17" Digital NI (1280x1024,.28dp) **$849**
DX-15F 15" Green FST (1280x1024,.28dp) ... **$429**
DX-17F 17" Green FST (1280x1024,.28dp) ... **$729**

NEC

3V 15" Multi-Freq **Green EPA** (.28dp) **$495**
3FGe 15" Color Monitor (1024x768,.28dp) **$595**
4FGe 15" Multi-Freq (1024x768,.28dp) **$655**
5FGe 17" Multi-Freq (1024x768,.28dp) **$1045**
MultiSync 5FGP 17" (1280x1024,.28dp) **$1175**
MultiSync 6FGP 21" (1280x1024,.28dp) **$2125**

OPTIQUEST

800S 14" VGA (640x480,.39dp) **$199**
900S 14" SuperVGA (1024x768,.28dp) **$249**
1000S 14" SVGA NI (1024x768,.28dp) **$265**
1500D 14" Digital NI (1024x768,.28dp) **$339**
2000DX 15" Digital NI (1280x1024,.28dp) ... **$375**
2000DS 15" Digital NI (1280x1024,.28dp) ... **$389**
2000DC 15" Digital NI (1280x1024,.28dp) ... **$415**
4000DS 17" Digital NI (1280x1024,.28dp) .. **$685**
4000DC 17" Digital NI (1280x1024,.28dp) .. **$765**

NOKIA
CONSUMER ELECTRONICS

44BS 14" Green SVGA NI (1024x768,.28dp) **$425**
449E 15" Green SVGA NI (1024x768,.28dp) **$545**
447B 17" Green SVGA NI (1280x1024,.26dp) . **$1025**
445M 21" Green SVGA NI (1280x1024,.26dp) **$2075**

ViewSonic®

4E 14" SuperVGA (1024x768,.28dp) **$269**
6E 14" SuperVGA NI (1024x768,.28dp) **$285**
7E 17" SuperVGA NI (1024x768,.28dp) **$729**
14E 14" SuperVGA NI (1024x768,70Hz,.28dp) **$325**
15E 15" Flat Screen (.28dp,76Hz refresh) **$375**
15 15" Digital Multi-Freq (.28dp,1280x1024) **$449**
17G 17" Digital Multi-Freq (.28dp,1280x1024) **$799**
17 17" Digital Multi-Freq (.28dp,1600x1280) **$949**
20 20" Digital Multi-Freq (.28dp,1600x1280) **$1489**
21 21" Digital Multi-Freq (.28dp,1600x1280) **$1729**

Sceptre

CM-4Y 14" SVGA (.39dp,1024x768) **$209**
CM-6Y 14" SVGA (.28dp,1024x768) **$239**
CE-6N 14" Digital FST NI (.28dp,1024x768) **$275**
CE-61N 14" NI (.28dp,1024x768) **$250**
CC-6N 14" NI Digital (.28dp, 1280x1024) **$309**
CC-615 15" Flat Screen (.28dp,1280x1024) **$335**
CC-615GL 15" Green FST (.28dp,1280x1024) **$399**
CC-617 17" Flat Screen (.26dp,1280x1024) **$699**
CC-617L 17" FST Low Rad. (.26dp,1280x1024) .. **$749**

MITAC

A1437 14" SVGA (.39dp,1024x768) **$205**
A1438 14" SVGA (.28dp,1024x768) **$225**
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Sony GDM-17SE1 17" SVGA NI FST **$1229**
Sony DGM-2038 20" SVGA NI FST **$2299**

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Cirrus Logic GD5426 VLB Accelerator w/1MB **$88**
Cirrus Logic GD5428 VLB Accelerator w/1MB **$90**
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WD-90C33 **VLB Accelerator** w/1MB **$93**
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Graphics Ultra Plus ISA w/1Mb **$165**
Graphics Ultra Plus VLB w/1Mb **$165**
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Hercules Dynamite Pro VLB w/1Mb **$180**
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Hercules Dynamite Pro VLBw/2Mb **$220**
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Hercules Graphite Pro VLB w/1Mb **$275**
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CFS420A 420MB IDE HDD (14ms) **$295**
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CP-30170 170MB SCSI HDD (17ms) **$230**
CFP1060 1.06Gb Fast SCSI-2 HDD (9ms) **$820**

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M2624ESA 1.05GB SCSI HDD (12ms, 5yr wrnty) . **$820**
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Brand New! WD AC2540 540Mb IDE HDD **$415**

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Mitac 105MB IDE EXT. Removable Disk Kit **$430**
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SQ3105 105MB Ext. IDE Removable Disk Drive **$430**
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VESA Local Bus Super IDE & IO (2S,1P,1G) **$28**
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AHA-1542CK ISA SCSI Kit- Bus Mastering **$257**
AHA-2742TK EISA SCSI Kit - Bus Mastering **$370**
AHA-2842VLK VLB SCSI Kit - Bus Mastering **$305**

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QLogic FAST-SCSI **EISA** HDD/FDD Adapter ... **$229**
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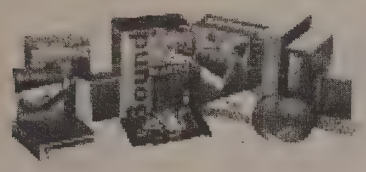

Harmony IIIC Multimedia Power Kit **$299**
- Mitsumi FX-001D Int. Double Speed CD-ROM 250ms
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- 5 CD titles - Reference Library, US Atlas, World Atlas, Mavis Beacon's Typing, & Chessmaster 3000

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NEC CDR-510 / Spectrum 16 Bundle **$489**
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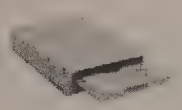
- **Pro-Audio Spectrum 16** Stereo Sound Card



CD-ROMs

Mitsumi

Mitsumi FX001D Int. CD-ROM (Double Speed,250ms) **$157**
Mitsumi FX001D Int. CD-ROM with Interface **$165**

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NEC CDR-6003Xe External 3X Speed CD-ROM **$605**
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Panasonic CR-562 Int. 2X CD-ROM (320ms,300kb/s) .. **$157**
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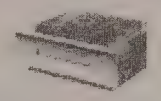

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Colorado Ext. Power Tape 2.0GB Tape Backup ... **$1095**
Colorado Ext. Power Tape 4.0GB Tape Backup ... **$1425**
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AMI **VLB** 60Mhz M/B w/256K $1325
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AMI 486DX-33 **PCI** M/B w/256K $700
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AMI Enterprise IV 486DX-50MHz **EVLB** M/B w/256K $900
AMI Enterprise IV 486DX-33MHz **EVLB** M/B w/256K $750
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AMI Super Voyager II 486DX-50MHz **VLB** M/B w/256K $775
AMI Super Voyager II 486DX-33MHz **VLB** M/B w/256K $625
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Micronics M4P 486DX2-66 M/B w/256K $805
Micronics M4P 486DX2-50 M/B w/256K $675
Micronics M4P 486DX-33 M/B w/256K $665
Micronics M4P 486SX-33 M/B w/256K $460
Micronics E3 486DX2-66MHz M/B w/256K $805
Micronics E3 486DX-50MHz M/B w/256K $810
Micronics E3 486DX2-50MHz M/B w/256K Cache $680
Micronics E3 486DX-33MHz M/B w/256K $670
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Micronics MX-30 486DX2-50MHz **VLB** M/B w/256K $570
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Micronics MX-30 486SX-33MHz **VLB** M/B w/0K $246
Micronics MX-30 486SX-25MHz **VLB** M/B w/0K $275
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Micronics Mini 486DX-50MHz **ISA** M/B w/256K $700
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Keytronics KT-2000 101keys Kbd ... $35
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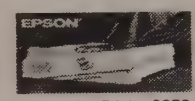

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Continued from page 116

Multimedia Software Reviews

Morph for Windows 1.5

Published By: Gryphon Software
List Price: $169
Reviewed By: Pamela Mason

Art student Tom Brigham's obsession with taking a photograph of one object and turning it into another gave birth to the technology known as morphing. He introduced his technique at SIGGRAPH 1982 where he turned a woman into a lynx! Gryphon Software's Morph 1.5 brings this morphing technology to the Windows environment. You've seen it used on MTV in Peter Gabriel's "Kiss a Frog" video and in numerous commercials, movies, and magazines. Morph is quick and easy to learn and use. Since I am about to have a baby I morphed an image of my husband with one of myself in a scientific experiment to see what our child might look like! Besides all the fun you can have, there are many practical applications for Morph. You could, for example, create a marketing demo and morph an old product version into a new one.

Improvements from v1.0 to 1.5 include warping capabilities: You can stretch and distort an image as if it were on a sheet of rubber or do facial caricatures and change features. Also added is dynamic morphing—the ability to morph two separate sets of moving images into one another. (Remember the commercial where the moving car turns into a running tiger?)

Source images can be frame captures, scanned images, or any of the most commonly used file formats. The only restriction is that both source images must be the same size in pixels. The morph movies are saved in either Video for Windows AVI format, FLIs, FLCs, or individual frames. I did find placing the control points for creating the dissolve between the two images to be a bit tedious. The results were well worth the effort though, when I saw the magic of one image transitioning into another.

Throughout the manual potentially confusing terms are explained clearly. (It is possible to write computer documentation that can both educate and make the product easier to use!) I particularly like the explanation of how to calculate image size to determine how much memory you need. (Hmm, does this mean if you get a memory error in Windows you might actually understand why?)

Morph is maturing nicely with this latest version and is hard to beat at this price. (Gryphon Software Corp., 7220 Trade St., Suite 20, San Diego, CA 92121. 619/536-8815, ext. 227) ■

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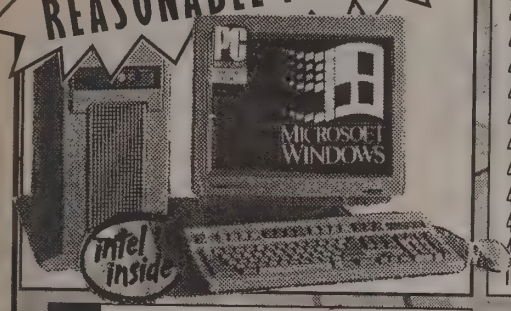

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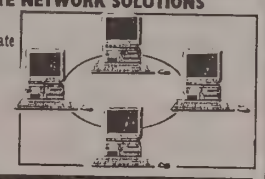

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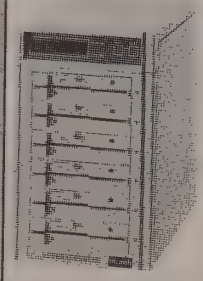

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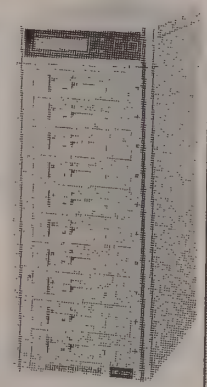

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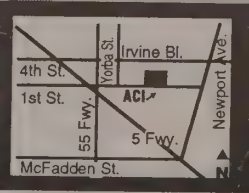

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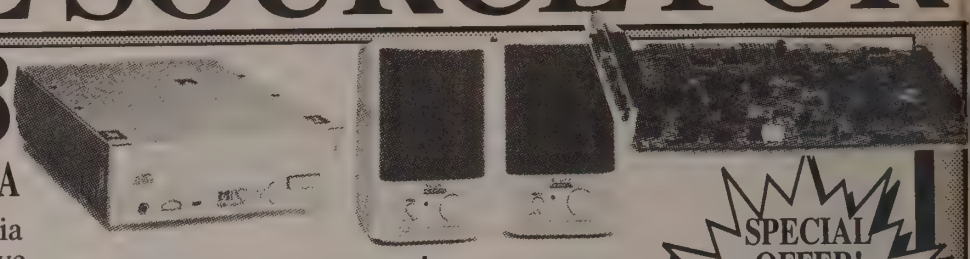

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continued from page 34

the message, as if it were a paper memorandum. This is a waste of space and a duplication of effort, since the form of electronic mail is modeled on memoranda anyway, and all the important headers, such as From:, To:, Cc:, Date:, and Subject:, are in the headers of the message. Find a way to turn off memorandum headers inside the message body or find a new mail program.

Some commercial conferencing systems don't have Cc: headers, and require you to send a separate message to each person you want to reach. This increases their revenue, since they charge per message, but decreases the utility of electronic mail, since it discourages carbon copies because of expense and makes mail conversations more difficult. You might want to find a different mail program for that system, or find a different conferencing system.

Other people quote all the headers of a message when quoting the text of the message. The From: line would be quite enough in most cases. You do not need to quote Received: lines unless you are asking for help debugging a bounce message. You may say you don't have time to delete them. The reader may not have time to read them. Maybe you should get a mail program that will delete them for you.

2) Forwarding personal mail without permission

Most mail systems make forwarding a mail message very easy. Some mail users will forward any message they get to anyone they please whenever they feel like it. The rationale some use is that business mail is not private unless the writer explicitly says so. Somehow it's hard to believe the writer saying so would make any difference. If a message is addressed only to you, the best rule of thumb is not to forward it to anybody else unless it was clearly part of an ongoing conversation in a mailing list or newsgroup (subjects of later columns), or you ask permission of the original writer first. On the other hand, don't send any mail you wouldn't mind seeing on the evening news: it's happened.

Related to this, is the person who decides to keep sending messages to your personal mailbox even after you have expressed disinterest. Because it's possible doesn't mean it's polite or right.

1) New subject at the end of the message

Blah blah blah, blah blah, and on another topic we've just been assigned a new project....

Unlike paper mail, electronic mail does not require you to print, envelope, stamp, and mail a new piece of paper for each message. It really isn't difficult to send a new message for a new subject. You can even put a new Subject: header at the top, so that the reader can see what you're writing about, and can file the message in an appropriate folder.

This top ten list may not be as funny as some you'll see on late-night television. Experienced electronic mail users will probably get a chuckle out of some of them, though. We hope they will help you communicate more effectively online. ■

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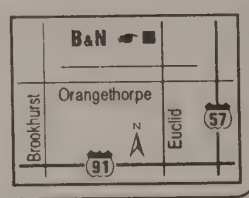

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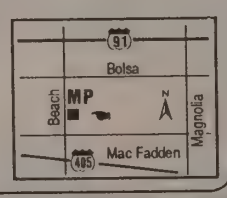

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HSC Software, famous for Kai's Power Tools, is about to make life significantly easier for the digital artist with the release this June of Live Picture for the Macintosh. Live Picture has the ability to process huge photographic-quality images in real time, as if they were a fraction of their actual size. Furthermore, Live Picture allows the user to go back and modify any image processing operations in non-linear fashion.

I got an in-depth guided tour from Lee Varis of Varis Photography, who has been working with pre-release versions of Live Picture. (Varis, incidentally, photographed the moth used in Silence of the Lambs promos.)

FILE FORMATS

Varis explained that an 8 x 10 transparency generally requires a file 35 to 75MB in size. About 400 to 600 dpi (dot-per-inch) is desired with a 4,000 x 5,000 pixel image being ideal.

Before an image can be used in Live Picture, it must be converted into a proprietary file format called IVUE. The conversion process takes about two seconds for every megabyte, resulting in an IVUE file about one-third bigger than the original file.

To demonstrate the program's capabilities, Varis selected an 18MB image already in the IVUE format from a PhotoCD. When the file loaded up in a matter of seconds, I knew I was in for something special. "Live Picture is constantly rastering whatever you're working on to the screen, but it only does what you need to see. It never really opens up the whole entire file, it's only showing you 72dpi of what you want to see," explained Varis.

All subsequent editing and image processing information is stored as mathematical expressions in a separate FITS (Functional Interpolating Transformation System) file. The FITS technology is a new method for mathematically describing computer images—entirely different from traditional bitmapped methods. Saving work-in-process only requires saving the relatively small FITS file—Live Picture doesn't penalize you for frequently saving your work as you go.

IMAGE CAPABILITIES

Internally, Live Picture tracks colors at 48 bits (16 bits per color channel). That's 281.5 trillion different colors, allowing very subtle shading and precluding the color banding that can occur after applying multiple processing operations using only 24 bits.

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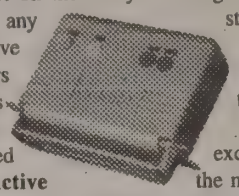

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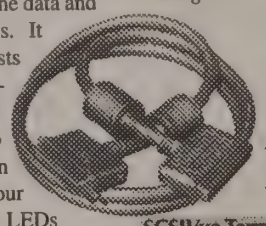

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The program also uses both RGB and HSV color palettes. For high-quality color separations, RGB images can be translated to and from CMYK.

Live Picture's lens-like "layer" features are equally impressive. In a telescope, a series of lenses is used to make objects appear closer than they really are. If we rearrange the lenses in reverse order, we would achieve the opposite effect—the object would appear farther. Alternatively, we could regrind a lens to change its optical characteristics, add another lens that was identical to an existing one, remove a lens, add a different lens, or do any combination. Every set of lenses would interact with each other and produce a different image through our telescope.

In the same manner, Live Picture's image processing operations are all done on separate layers. Each time a user selects a new processing function, a new layer is created. As with our hypothetical telescope, you look at the original image through the layers, which collectively form the final image. There is no limit to the number of layers that can be used.

Also, as with the lenses in our telescope, you can modify a layer, change the ordering of layers, duplicate an existing layer, remove (or hide) a layer, and add layers. The ability to hide layers allows a user to explore multiple versions of a project without needing to save multiple files. User-definable layer names are displayed in a vertically scrolling list on the right side of the display. The ordering of layers can be quickly changed using a drag-and-drop technique. The list also provides a means to group layers.

This is a quantum leap from traditional undo and redo capabilities. You can go back and tweak any operation that was performed without having to start all over. Varis explained that before Live Picture, he would work with a low-resolution version of a project until the client's final OK. He then had to start from scratch and recreate a high-res version. This is now totally unnecessary.

Each new layer lengthens the display update time. If this becomes a real burden, you can compile all of the layers into a new IVUE file. This lets you start anew and continue to add layers. However, you lose the ability to modify the layers existing before the compilation.

Instead of floating toolboxes, Live Picture's tools are stacked vertically on the left side of the screen. Varis says he likes this arrangement because toolboxes inevitably get in the way and have to be moved around.

There are two sets of tools: creative and mechanical. Creative tools allow users to work with brushes, marquees, and bezier path tools. Paths are used for masks, stencils, and inputting text. PostScript and TrueType fonts are supported and brought in as fully-editable bezier outlines. You can change the brush size and density, and apply a pastel or water color effect. The mechanical tools are used to scale, rotate, skew, and flip things around.

Image-processing capabilities include airbrushing, cloning, painting, coloring, image insertion, distortion, silhouette, image cloning, blurring, sharpening, lighting, and color correction. All masks have hard or feathered edge options.

Since all operations are mathematically stored, some effects can be proportionally undone. If, for example, a certain part of an image was blurred, the user can undo the blur at an intermediate point, without reversing the entire process.

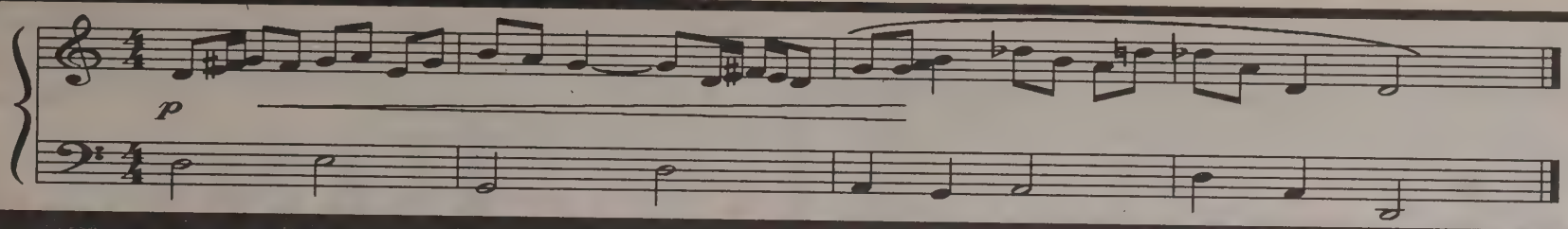
WORKING WITH LIVE PICTURE

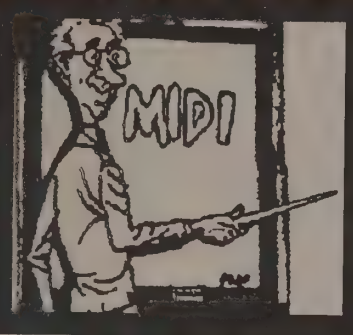
Varis first colored the initial image and gave it a gradient look. Pop-up slider gadgets provided any easy way to set the desired beginning and ending values. Once the parameters were set, the operation took only a few seconds. He also showed me how quick the rotation and resizing operations were.

He then loaded a 50MB 6,000 pixel 2-1/4" shot, also originally from a PhotoCD. He resized the image to fit inside the initial image and pasted it in, using a 100-to-zero percent gradient, bottom to top. The gradient represents one of the two alpha channels available for every layer, called a mask.

The other alpha channel is called a stencil and created using bezier editing tools, similar to Illustrator, to make a path that defines a "cookie cutter" mask. Varis created one to cut out the main part of the second image. The hard-edge cutout had very nice antialiasing, allowing a good composite image.

Varis then retrieved the bezier path from the stencil and used it for a stencil in a new layer. He used this to create a soft gradient drop-shadow with a feathered edge. Placing this beneath the second image gave the piece a





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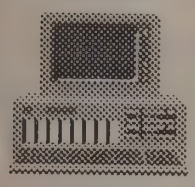

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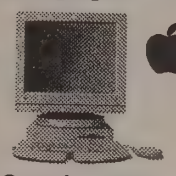

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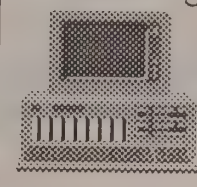

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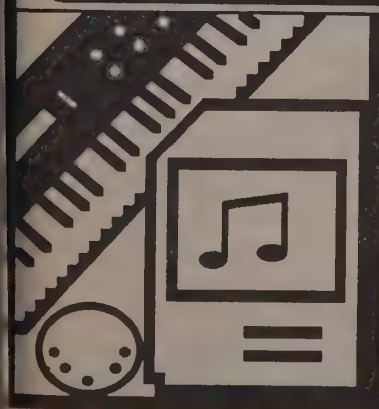

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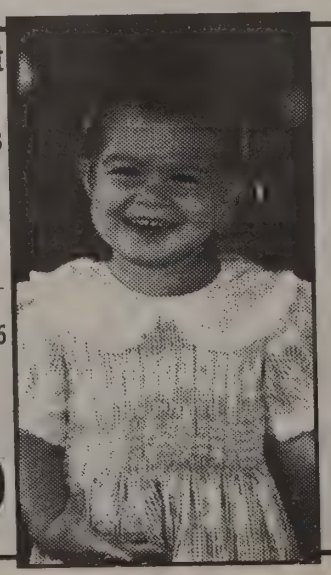

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three-dimensional feel.

Live Picture's silhouette feature was demonstrated by bringing in a picture of a rosé, shot over a blue screen. By rubbing the mouse pointer over the rose, you define the general object you want to cut out. Live Picture automatically calculates a mask based on color and contrast values. A handy preview function lets you make sure you got everything right. The actual calculation of the mask is not instantaneous, however.

Of course you could use Photoshop to accomplish these effects, but it would take you a significantly longer time. Live Picture performed all of the operations so smoothly, it was easy to overlook the magnitude of what it was doing. However, when you consider that all of the operations were being performed on very large files with 48-bit accuracy, the results are nothing short of awesome!

When you zoom in on a display, everything is recalculated to show what it would look like at the new magnification. Unlike in a traditional paint program, you don't really get pixelization because Live Picture keeps recalculating the display.

Another unique feature of Live Picture: airbrushes are mathematically calculated and retain their size relative to the physical display. Thus, when you change the display magnification, an airbrush increases in size relative to the image. This allows you to work with, say, a 3,000-pixel airbrush—in real time.

OUTPUT

Once all of the image processing operations are complete, the IVUE file is married to the FITS file, forming the final bitmapped output file. The output file can use any resolution regardless of the resolution of the original image. The compiling process is reportedly not simply a playback of all of the image processing operations. Thus, Live Picture avoids cumulative processing errors by only processing the information in the FITS file that is implied overall. Depending on the complexity of the project, this process can take an hour or longer.

Live Picture uses sizable windows, called views, that define what areas of the overall montage the user wants "clipped" to the final file. Views also provide a quick way to navigate around the screen.

Live Picture also supports TIFF, EPS/DCS, Photoshop 2.5, and Scitex CT file formats. The release version will support all of the acquire and export Photoshop plug-ins, as well as Mac codec hardware, according to Varis.

For remote site processing, there is a unique benefit to this multiple-file approach. A user can work on a JPEGged IVUE image and create a FITS file. The small FITS file can then be transferred via modem to, say, a service bureau that has the original uncompressed IVUE image for final output.

USE THE RIGHT TOOLS

Pixel-based image processing still makes sense for certain operations, like making very detailed changes. Live Picture's forte is performing larger-scale operations. For example, to fix wrinkles under someone's eyes, Varis would use Photoshop. "Using Live Picture would be like using a giant hammer and trying to hit a little finishing nail," he says. "It's not really suited for that." Live Picture is expected to serve as an addition to a digital artist's arsenal of tools, not a replacement.

REQUIREMENTS

The program requires at least a 68040-based Macintosh with a 24-bit graphics card, color monitor, and 32MB of RAM. The recommended system configuration is a Macintosh Quadra (or PowerMac), 64MB RAM, 24-bit graphics card with hardware zoom, a large screen color monitor, a pressure-sensitive drawing tablet, and a QuickTime/JPEG acceleration card. A PowerMac version is scheduled to be released sometime after the regular version ships. The program uses an ADB-chain dongle.

Live Picture is nothing short of revolutionary, and represents an opportunity for smaller digital-imaging businesses to compete with larger companies. As Varis says, "Live Picture will put the fear of God into a lot of places with these expensive pieces of equipment."■

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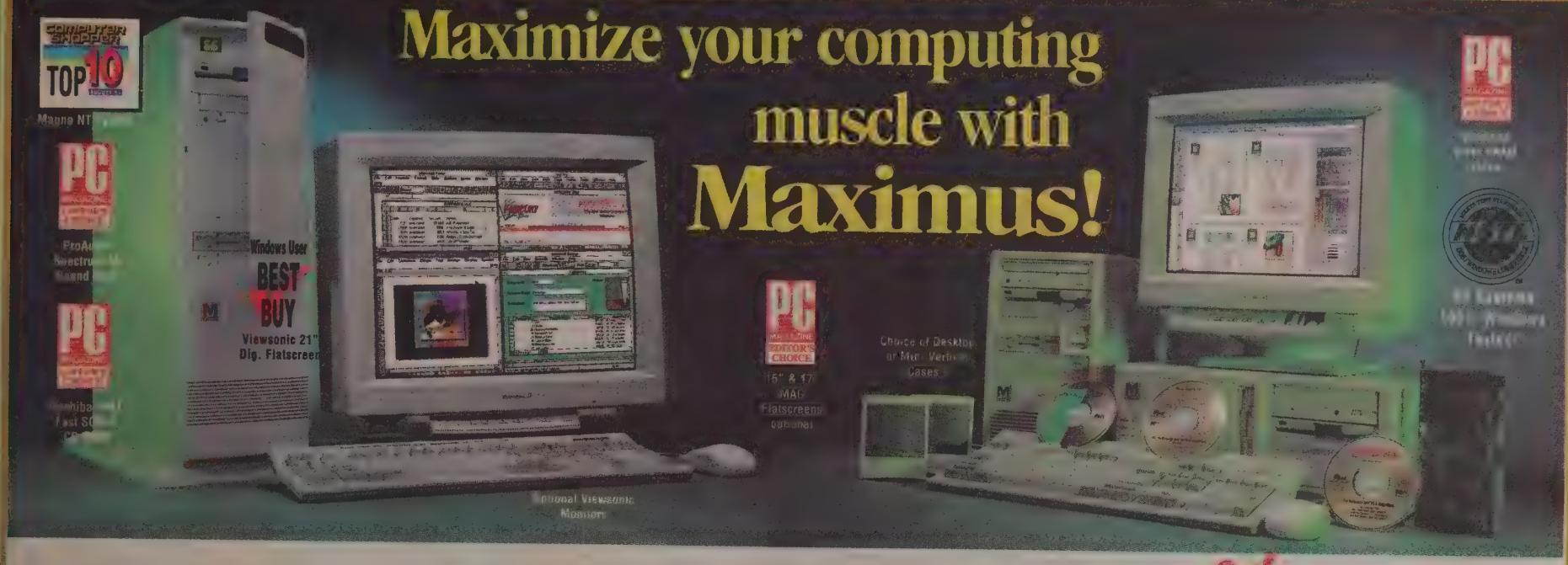

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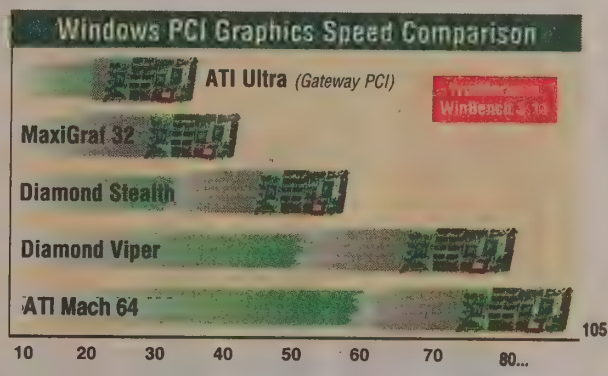

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- Pentium P24T Ready Socket
- 1.44MB Floppy Drive
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- 101 Enhanced Keyboard
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They needed to inform attendees about the service without scaring them away.

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Since I often write about how easy and inexpensive it would be to do a great multimedia presentation using the Amiga, this was the challenge to make me put my money where my mouth was.

This article describes how I went about creating a demo presentation, including selection and use of hardware and software, with a particular emphasis on Scala Multimedia 300.

HARDWARE

Choosing the Amiga 1200 as the delivery hardware was easy—the photo-realistic color and animation capabilities of the AGA chip set were a necessity. Furthermore, the 1200's built-in RF and composite video outputs allow it to be directly connected to any standard TV.

Portability was also an issue. Though the 1200 cannot be labeled a true portable computer because it requires AC power and doesn't have a built-in screen, its compact size and built-in keyboard make it very transportable.

A comparable IBM PC-compatible system would require a fast 486 processor, an accelerated video card, a sound board, and a video converter (needed to change a PC display signal to standard NTSC video; a good one costs several hundred dollars). This higher-priced setup would have delivered lesser performance, not even considering the aspect of portability. An Amiga 1200 with a 2.5-inch 60MB hard drive and 6MB of RAM has a street price of under $1,000.

BY DOUGLAS J. NAKAKIHARA

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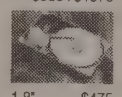

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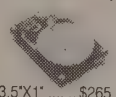

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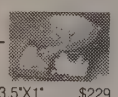

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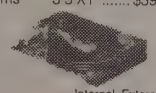

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SEE FAST WIDE CONTROLLERS UNDER SCSI CONT.

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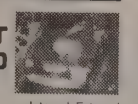

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525MB	ST3600N	12ms	3.5"X1"	$535	....	$799
1.05GB	ST11200N	12ms	3.5"	$849	....	$949
1.0GB	**ST31200N**	**10ms**	**3.5"X1"**	**$798**	**..**	**$899**
1.4GB	ST41650N	15ms	FH	$1085	.	$1299
1.6GB	ST11950N	8ms	3.5"	$1465	.	$1579
1.7GB	ST11900N	10.5ms	3.5"	$1135	.	$1249
1.9GB	ST42100N	12.9ms	FH	$1395	.	$1589
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2.1GB	**ST12400N**	**9ms**	**3.5"**	**$1395**		**$1539**
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270MBCART.SINGLE / 5 PACK	**...$86/405**
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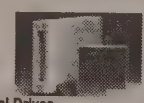

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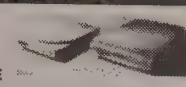

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3Xe	External Triple Speed 450Kb/Sec 195ms	$569
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Battery PACK Charger		$139
3Xi	CDR 510 OEM ***Limited Qty***	$365

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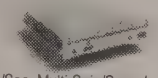

SCSI CD ROM DRIVE

XM3401B 200ms, 330Kb/Sec, Multi-Spin/Speed, 256K Cache Buffer, Kodak Photo CD, Caddy INC.
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XM4101 Double Speed (320ms) 1" $230

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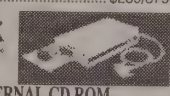

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bpCD 350ms, 128K Cache, Multi-Session Photo CD, Device Drivers, Ideal for Notebooks $355
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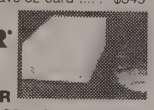

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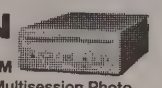

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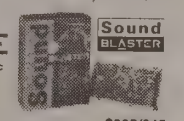

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Sound Blaster 16 MultiCD/WithASP	$145/185
Sound Blaster 16 Value Edition	$139
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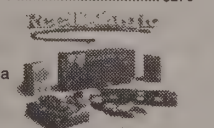

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SCSI CONTROLLERS

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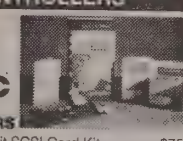

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1505	CD ROM 16-Bit SCSI Card Kit	$75
1515	16 BIT ISA -SCSI 2 KIT	$99
1522	16-Bit 7HD/2FD **Kit**	$145
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2742	EISA Kit, **14HDs**	$365
2742W	**FAST WIDE** SCSI CARD	$365
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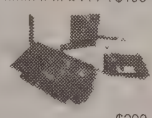

SCSI CONTROLLERS

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KT545Kt	BusMaster Fast SCSI	$229
KTB742Kt	EISA SCSI-II Kit	$329
KTB747AK	EISA Fast SCSI Kit	$379
KT757D	EISA **WIDE** SCSI DIFFERENTIAL	$585
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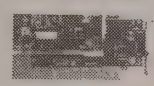

SCSI CONTROLLERS

T130	8-BIT W/SCSI WORKS	$65
T228	MicroChannel, 7 HD	$139
T348	Parallel Port to SCSI Plus	$149
T358	Parallel Port to SCSI Plus Enhanced	$199

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TAPEMATE II backup software & Music Box-Audio CD Software **$59**

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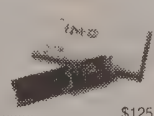

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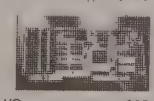
DATA TECHNOLOGY



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WONDER	2-16550 2HD/2FD 1PARL/1GAME	$75
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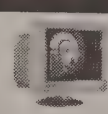
MONITORS

NEC



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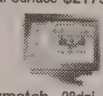

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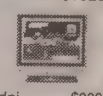

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SVGA 512K 1024X768	$44.99
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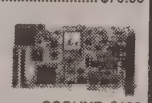

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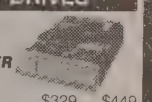

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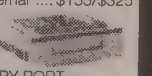

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SOFTWARE

For high-impact performance, the only choice for presentation software is Scala Multimedia 300. Scala takes full advantage of the Amiga's graphics and audio capabilities, and really shines on an AGA machine. Scala carries a price tag of about $400, bringing our total package to $1,400.

Now remember that this is basically a delivery-only system. Although you could develop the presentation using the same configuration, you would want to add a paint package, an image processor, and maybe a 3D animation package to add some spark to presentations. A good paint program will run you about $150 and an image processor about the same; 3D animation programs cost from $250 on up. Though not a necessity, a scanner or video framegrabber can add even more pizazz to a presentation, by allowing you to quickly incorporate pictures.

MY SETUP

I have an Amiga 4000, 3000 and CDTV networked with Spectronic's AmigaLink. My 4000's hard drive is filled with—what else—VideoToaster software, so I run Scala on the 4000, but the software is actually stored on my 3000's hard drive. Only Scala's fonts are stored on the 4000. The network allows me to perform CPU intensive tasks like modifying graphics and audio on the 3000 at full speed, while testing presentations on the 4000.

I digitized some photographs for the presentation using MacroSystemUS's VLab, though I could have also used my VideoToaster. I then cropped and scaled the images using Art Department Pro (ADPro) from ASDG. For smooth transitions during presentations, it is important to keep the resolutions of all screens the same. The correct resolution was easily determined by simply loading one of the Scala backgrounds into ADPro and noting its size.

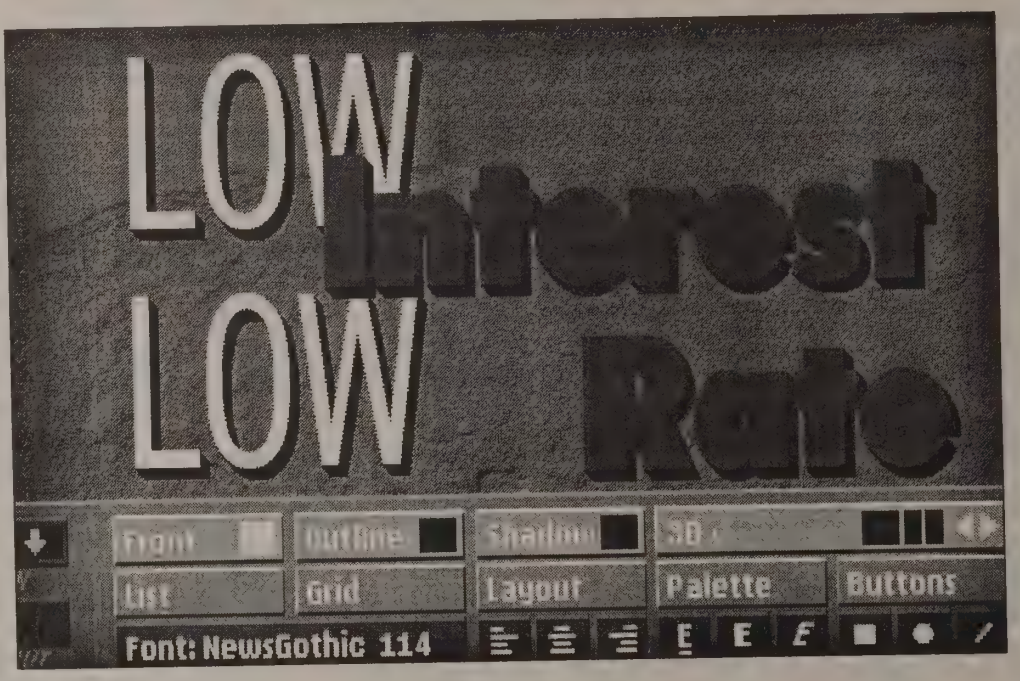
I needed to create a screen where a user could input numbers on an imaginary adding machine and then do some calculations, the results of which would appear on subsequent screens. Unfortunately, Scala permits only a limited degree of user interactivity on a single screen.

I solved the problem by writing the calculation program using Helm from Eagle Tree Software, specialists in just such applications. By calling an ARexx script from Scala, I was able to seamlessly integrate the Helm application into the Scala presentation. (I could have used Innovatronics' CanDo instead of Helm. However, since CanDo displays an annoying startup screen unless you pay a license fee for a special player program, Helm's freely-distributable player was better suited for the task.)

FLYING LOGOS

From the very beginning I knew I needed some "eye candy" (i.e., a 3D animation). I wanted something spectacular, but I didn't want to spend a whole lot of time on it. Since the company's service involved the citrus industry, I settled for the company's name revolving around an orange.

Using the VideoToaster's Lightwave 3D animation package, I made a 90-frame animation. Setting up the animation was a snap. Lightwave had a pre-made ARexx script to set up the letters in a circle. The orange: a ball with the "orange" texture. I used a nice steel-gray background generated with JEK's ProFills.



At first I converted the Lightwave 24-bit image frames to HAM8 with ADPro and ProControl (also from ASDG), but the anim file ended up a couple megabytes in size. Although Scala has an option to spool animations from disk, super-smooth animations must be run from RAM. It was also questionable whether the 1200 could play it back at 30 frames per second—the resolution was 704 x 480. So I reduced the number of colors further to 256. The animation still weighed in at 1.5MB.

Then I realized that the company name appeared twice on the revolving ring and made one revolution—so I could just repeat the first 45 frames with no visual difference. This reduced the animation to under 1MB at last.

USING SCALA

Scala screens are called "pages" and are displayed in a vertical list. You can graphically arrange them any way you wish using the mouse. Pages are generally executed from top to bottom, but there are provisions to jump around in subroutine-like fashion. A typical page consists of a background image, with some text placed on it. However, pages can also indicate the start or end of a music module, an animation, an ARexx script, etc. Scala supports Tracker-type music modules, so using my networked CDTV, I pulled a nice song with a jazzy beat and catchy melody from a music module CD.

A page can be "wiped" onto the screen using any one of a number of built-in effects. You can also define how long a page is visible or whether it should be user-controlled. Scala also has a feature where it will record the timing of pages while you go through it once manually—a very handy feature if you want to synchronize events with music.

Although Scala includes many premade backgrounds, I wanted to use a custom-tailored one for the informational text portion of the presentation. I started with a beautiful close up of some fresh citrus fruit and then created a grayscale 16-color embossed version using ADPro. This was

RESOURCES

Amiga1200, $599
CD32, $399
Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
(215)431-9100

Scala MM300, $399
2323 Horse Pen Rd. Ste. 202
Herndon, VA 22071
(703)713-0900

Art Department Pro, $299
ProControl, $90
ASDG, Inc.
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Madison, Wisconsin 53713
(608)273-6585

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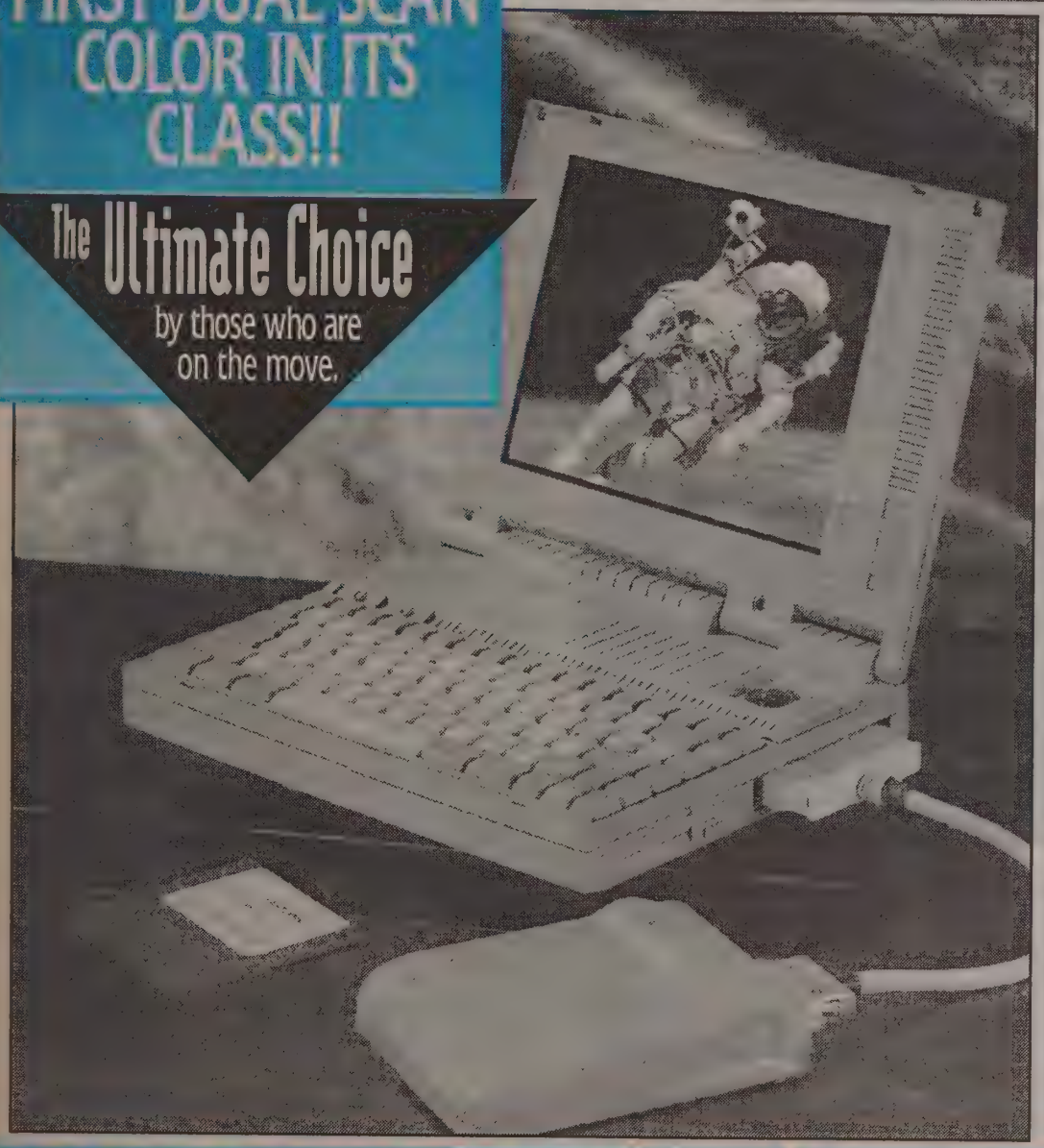

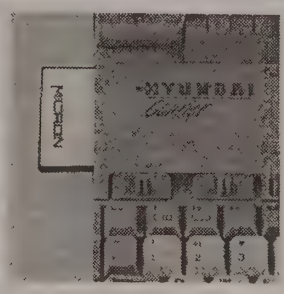

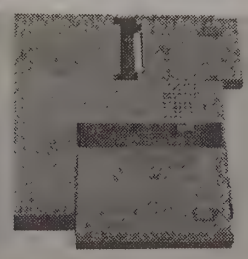

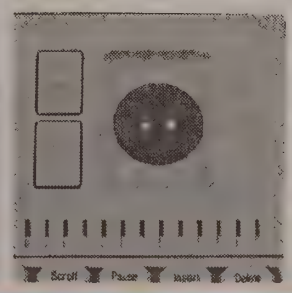

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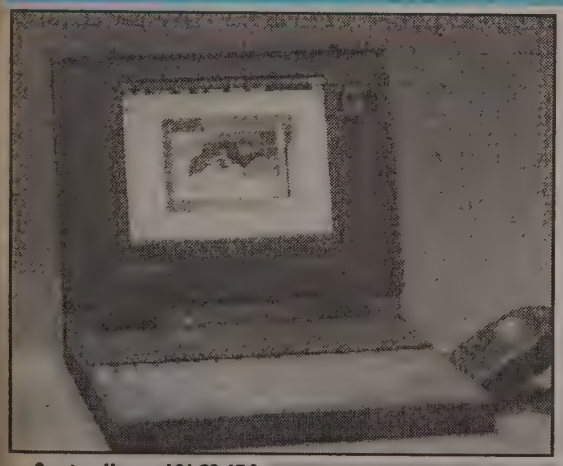

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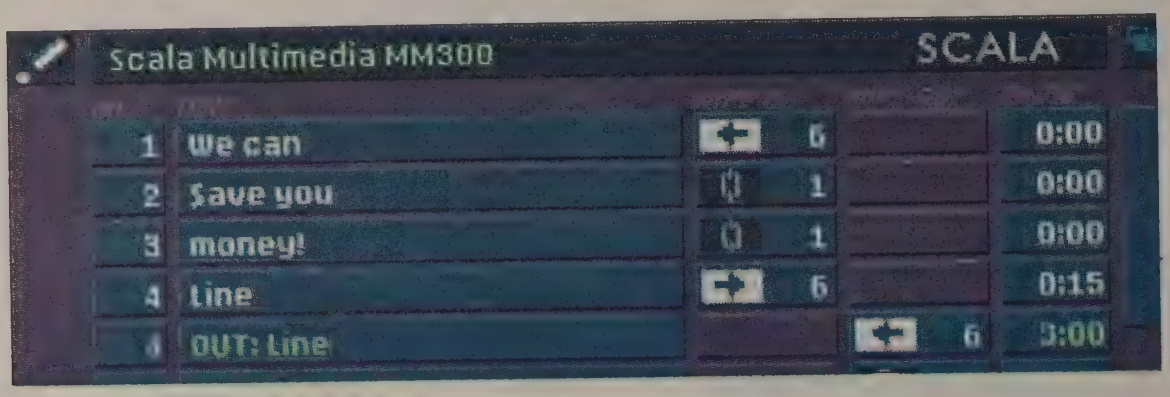
accomplished by first changing the color image to black-and-white, and then making it into a negative. This image was embossed, with the result saved as a 16-color hi-res IFF file.

Since Scala uses a special palette color order, I loaded one of the pre-made backgrounds into my paint program and modified the palette for a grayscale picture. The embossed picture was loaded and remapped to the modified palette. The final image was saved in the Scala backgrounds drawer. During the presentation, the full-color version fades into the embossed version—an interesting effect—



which serves as a background for the subsequent informational text.

Adding text to a page is as easy as selecting the font and typing on the page. Every line of text is its own object; every aspect of the text can be modified, including alignment, color, outline, shadow, and 3D-look. Text can be moved by just dragging it on the screen with the mouse.

For optimum speed, I only used bitmapped fonts and not Compugraphic outline fonts. If you have to, you can convert Compugraphic fonts to bitmapped using the AmigaDOS Fountain program. However, Scala already comes with lots of nice large bitmapped fonts.

You can also import graphic brushes. However, if you make custom ones, make sure the brushes use the same palette (or a subset) as the background, otherwise results may be unpredictable. Scala ships with many pre-made two-color symbol brushes.

Wipes can also be applied individually to text and other objects on a page, with separate on and off wipes supported. An effect can be applied to a group of objects by chaining them together. The speed and timing of the effects are configurable as well.

One 256-color picture I used didn't have the right palette to acceptably display the mouse pointer. So I used the "optimize palette" feature. I then noticed that before this image would appear there was a long pause, which I determined must be caused by Scala remapping to the optimized palette. To eliminate this, I just saved the background from Scala, so the modified palette would become the default palette. (You also have the option of saving the entire page including Scala objects.)

Since I chose to use an unaccelerated 1200, I was limited as to the type of text and page wipes I could use. I shied away from effects that moved a lot of graphics around. Most of the wipes worked fine, but a few would be slightly jerky. (Incidentally, an accelerator would have only added about $200 to the system's purchase price.)

The completed project, including background and audio files, was copied to an A1200 by connecting it to the network (I disconnected the CDTV). The Scala project script is an editable ASCII file, so with a standard text editor, it was easy to replace certain path names with ones that would work on the A1200.

THE RESULTS

Everyone who saw the presentation, including the president of our company, was very impressed and couldn't believe the Amiga 1200 achieved the results it did.

MORE FROM SCALA

Scala has reportedly developed a system that uses a CD32 with MPEG module, networked to an Amiga 4000 using their serial ports. The CD32 becomes a player device for Scala MM running on the Amiga 4000. This innovation will minimize the cost to develop CD32 titles using MPEG, since it allows use of CD32's inexpensive MPEG hardware. Of course this only helps for decode/playback development.

Scala is currently working on a version of the software for the PC. Don't expect Amiga performance on a PC, however. PCs lack a standardized graphics blitter chip, so the available wipes will be limited on that platform—in spite of the fact that a VESA Local bus PC is required!

Although you'll be able to launch Scala from Microsoft Windows, Windows will be "frozen" and put aside, while the Scala software takes over the machine. This feat will obviously take a tremendous amount of RAM. Also, the PC's lack of a true multitasking OS prevents pre-loading graphics in the background, which will have a detrimental impact on page transitions. However, the PC version will not have a dongle like the Amiga version does. (Who said life was fair?) My guess is that it will still fare very well against existing PC packages in any event.

Next month we'll take a look at Scala Inc.'s InfoChannel. This product takes Scala to the next level by offering remote site capabilities. ■

The Post-Commodore Amiga?

For the second quarter ended December 31, 1993, Commodore reported a net loss of $8 million. The Wall Street Journal, quoting a Commodore press release, reported "In the absence of additional resources and a restructuring, the company may become subject to reorganization or other liquidation proceedings."

I honestly believe the Amiga technology is too good to just disappear. Debt restructuring may be a possibility; however, Commodore would still need a large cash infusion for marketing and promotion. A more likely scenario would be another company acquiring Commodore (or just the Amiga technology) and continuing to produce Amigas.

All of the developers and dealers I spoke with were still optimistic about the Amiga's future. Supplies of A4000 are plentiful; however, Amiga monitors and A1200s continue to be scarce. Not surprisingly, I have also learned that the US launch of CD32 has been postponed.

RESOURCES

CanDo, $199.95
INOVAtronics, Inc.
8499 Greenville Ave., #209
Dallas, TX 75231
(214)340-4991

Helm, $129
Eagle Tree Software
P.O. Box 164
Hopewell, VA 23860
(804)452-0623

ProFills, $49.95
JEK Graphics
12103 S. Brookhurst St.
Ste. E-125
Garden Grove, CA 92642-3065
(714)530-7603

Video Toaster 4000, $2,395
NewTek, Inc.
1201 South West Executive Dr.
Topeka, Kansas 66615
1-800-847-6111

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Growl

Jaundiced Reflections On Multimedia

GROWL

I saw the best minds of my generation destroyed by multimedia madness,
hysterical, frantic,
dragging themselves onto the superhighway at dawn looking fo a digital fix,
starryeyed hipsters seeking the future electronic connection with the planetary soul in the machinery of bytes,
who venture capitaled, IPOed and bootstrapped sat up scheming in the analogue darkness of garages, office parks and lofts floating visions of the emerging hive mind,
who bared their brains to Heaven under the Sell and saw Molochian signals flashing on fluorescent screens illuminated,
who passed through universities with fevered sighs hallucinating Hollywood and virtual reality amongst the business majors,
who were sucked into the social hysteria for crazy & unpublished ordeals of new media on the inside of the skull,
who filled the world with infotrash, burning up the wires with strategic alliances and vapourware of Error that wouldn't call,
who got flustered with vast herds of lemming stampedes through the Gulch with silicon for New York,
who firey interacted in tiny CD-ROM shacks or broadcast in Product Alley, repurposed their content night after night

...and so on and so on—with apologies and thanks to Allen Ginsberg.

Ginsberg, incidentally and interestingly, had a fairly clear (although not technically correct) vision of one aspect of the Internet in his 1961 poem, "Television Was a Baby Crawling Toward That Deathchamber":

Six thousand movietheaters, 100,000,000 television sets, a billion radios, wires and wireless crisscrossing hemispheres, semaphore lights and morse, all telephones ringing at once connect every mind by its ears to one vast consciousness This Time Apocalypse—everybody waiting for one mind to break thru—

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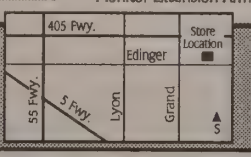

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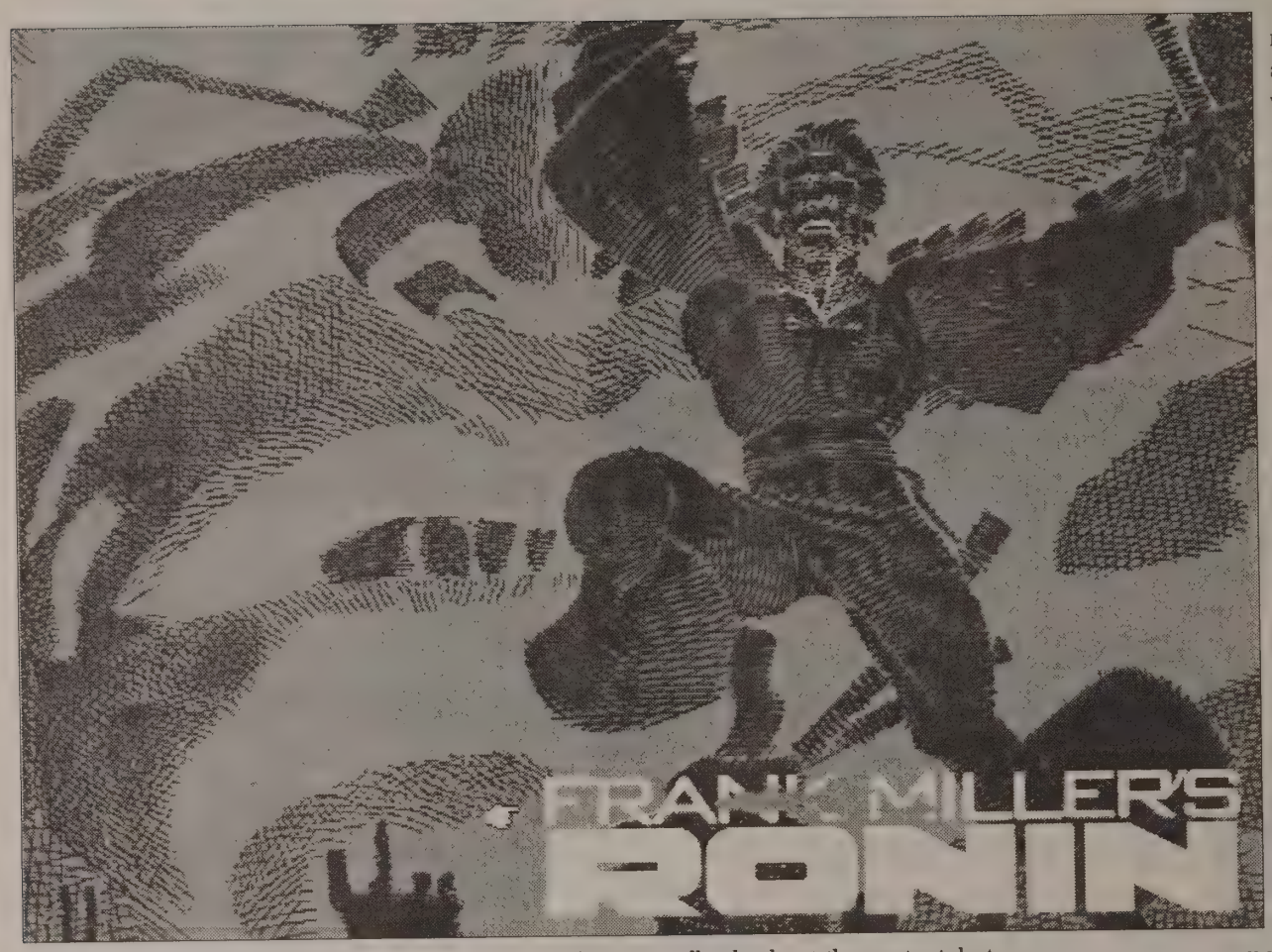
MultiMedia & beyond



MULTIMEDIA: REALITY CHECK

The mood of "Growl" came upon me early one morning when I heard one media person too many talk about "getting into multimedia." Once again, I was struck by the realization that multimedia is such a big elephant that all the big-game hunters desperately want to bag it for their trophy rooms while the proverbial three blind men still can't fully describe it.

I wouldn't wish to go back to the days when information was truly scarce—what one saw with one's own eyes or heard about from itinerant troubadours. However, the grand attractor forces of interactive multimedia and its purported riches act as hypnotic distractions on many who frankly should just get on with what they're doing instead of chasing will-o'-the-wisps across the marshes.

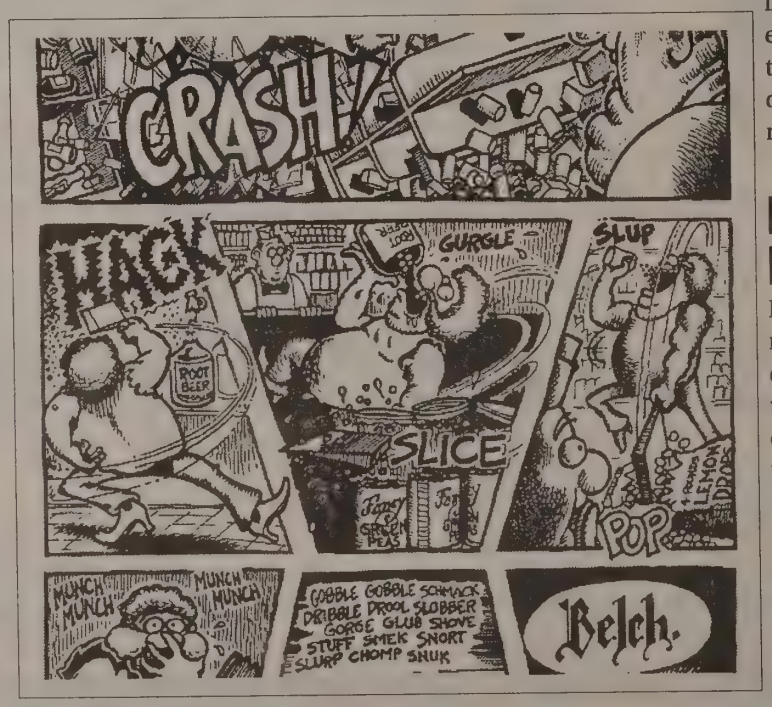
True, this stance leaves one liable to accusations of "lack of vision." However, visions can be hallucinations and there is a definite mood in the air of not wanting to miss the bus even if it is imaginary.

TRADITIONAL MEDIA WORK JUST FINE

Many contemporary forms of media work reasonably well (which is not to say that there is no room for improvement).

Broadcasting, especially radio, works within the limitations of transmitting signals through the ether. It is most definitely audio-only, and people tend to listen to it as background while doing something else. One could argue endlessly about the content, but the basic mode of near-instantaneous communication with large numbers of listeners is inherently one-to-many.

Radio does, in fact, have some interactive aspects. What else is talk radio? The interactivity is limited and almost entirely controlled by the broadcaster, but there is a feedback loop. Clearly, however, there are major theoretical and technical problems in the medium that prohibit many-to-many feedback. While there may be modifications of broadcast operations, a full-scale rush towards wholesale reform would be akin to tilting at windmills.



Similar arguments can be made about other current media. New media will not replace present forms, but will supplement them. Just as the industrial revolution did not make agriculture unnecessary, newspapers, magazines, books, music, theater, films, radio, and television will continue to have their places in society. Multimedia certainly offers new possibilities for distribution of these forms, as well as its own as-yet-unknown new paradigms. The ones that survive this initial phase of over-hyped excitement will be the ones that offer genuine advantages to the consumer.

Clearly, the market share of traditional media is certain to shrink as new media enter the arena. Even if the total media market expands significantly, traditional media revenues are most unlikely to grow at the rate of new media revenues. Hence the gold-rush mentality we are witnessing. It's a simple matter of attempting to maximize return on investment. Adding an extra spin to the mix is the great confusion over what the word multimedia means.

MULTI-MEANING MULTIMEDIA

Does "multimedia" refer to the use of desktop-production tools in the creation of conventionally distributed media? Does it mean computer products with sound and video? Is its real meaning the use of content in multiple market channels, such as movies that are also the basis for games and "Special Commemorative" soft-drink containers? Are magazines that sponsor online services and

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MultiMedia & beyond

put out CD-ROMs multimedia? Can radio and TV stations be multimedia? What about virtual reality—is that multimedia? Are new forms of electronic distribution and networking multimedia?

The correct answer is all of the above.

The multiple definitions obscure and tantalize as much as they illuminate. They're partially responsible for stirring up such hype—when the same word is used in mass media to describe so many different things without full explanation, both the public and members of the media begin to believe that it actually is all the same thing.

The most important emerging feature of multimedia, at this time, seems to be that it will be a networked many-to-many process rather than a broadcast product. Associated with this is the belief that a large hobbyist population of enthusiasts will evolve for whom multimedia will be rather like playing in a garage band. They'll do it for fun, perhaps with the hope of turning pro—but it will be a way of spending time and expressing creativity, rather than a matter of consuming someone else's ideas in the form of content.

There will be a myriad of niche markets for content, but multimedia seems unlikely to become mass media. The question for publishers will be how to fit their expensive titles into these smaller-than-hoped-for markets. A longer-range vision, however, might foresee a time when this legion of hobbyists finds ways to make truly involving multimedia that will expand the market for titles.

Regardless of what the future may hold, titles are here and now. There's even rumored to be a deluge of CD-ROM titles on with estimates ranging as high as 100 releases a week, although I seriously doubt that figure.

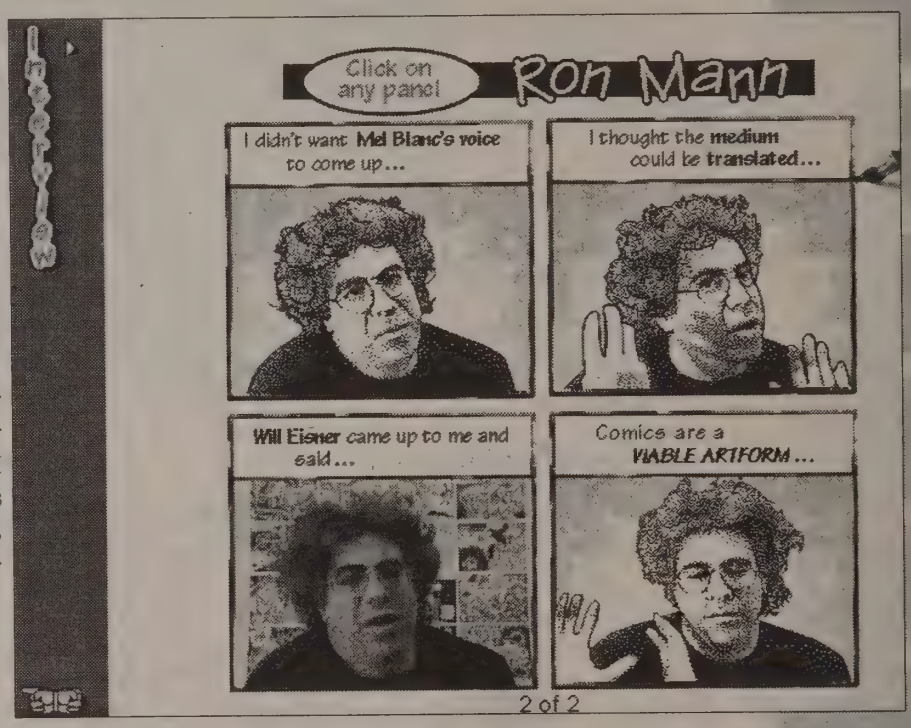
BLAM!

BLAM! is a CD-ROM-based magazine that exhibits a remarkably simple but effective approach to producing an experience unobtainable from traditional media. It's not a pleasant experience—but it's an experience nonetheless.

The technique is simple. Use a HyperCard front end with lots of flashing; use bold black-and-white graphics, many in what a substantial portion of the population would consider bad taste; use harsh and abrasive sounds that repetitiously grate on the nerves; keep interactivity to a minimum but functional. The subject matter for the most part is well suited to this treatment, being art-damaged and sex-obsessed from the Manhattan alternative world, although there are excerpts from Howard Rheingold's The Virtual Community and 2600, The Hacker Quarterly. Many screens contain only one word in huge, jagged type; the illustrations are equally severe—some are called up with a mouse click and some are thrust in your face.

The interactivity is basic. You can select an article to look at (although you are actually reading, it's more like you're looking at words). Once in an article, clicking on the right of the screen will take you to the next screen, clicking on the left will take you back a screen, and clicking in the middle will take you to the article's "splash" card or the table of contents. When you first open BLAM!, there's a mock piece of interactivity asking you various personal questions, which will then randomly select articles or advertisements for you. This can be overridden by simply saying that you've seen BLAM! before.

It's all rather jokey and the subject matter is not to my taste but I enjoyed BLAM! for its boldness and spunky, totally in-your-face attitude.


Interview
Click on any panel
Ron Mann
I didn't want Mel Blanc's voice to come up...
I thought the medium could be translated...
Will Eisner came up to me and said...
Comics are a VIABLE ARTFORM...
2 of 2

COMIC BOOK CONFIDENTIAL

Comic Book Confidential is a pretty good example of an interactive movie with ancillary materials. Based on a documentary by Ron Mann, it's interactive in the sense of immediate access to selected segments, not in the sense of a branching plot line or multiple character point-of-views.

You can watch the entire 90-minute movie straight through in either of two screen sizes, with standard QuickTime controls to pause, etc. You can also access any artist interview from an index, or go straight to several "Filmographs," which are basically short stories told through a comic strip with added sound and camera movement. As well as the original movie, there are still collections of the artists' work, their biographies and publishing histories, an interview with Ron Mann, suggested further reading, and a copy of the Comics Code.

A major reason this title works is that the original documentary is good. I don't have much interest in comics, but it was interesting to me to hear the artists talk about their work.

Comic Book Confidential has some problems with the search mechanism. It only finds the next occurrence of the desired work from the original dialog box. To find subsequent occurrences, you must use a keyboard command—you can't even just keep hitting return. In addition, the search only works for text, it doesn't cue the movie to an appropriate point. Likewise, if you're looking at the still collection of art or the artist's biography, you must go back to the index to cue the movie rather than being able to play it from that screen.

All this is minor compared to the major offensive thing I found: In the biographies on the disc, the text runs into the illustrations, making it illegible; on the box, the art is cleaned up so that the text flows correctly. In addition, the bottom half of many of the last lines of text on a screen are cut off. This reeks of sloppy production, and, in the case of the first problem, they obviously knew about it and couldn't be bothered to fix it. Otherwise, *Comic Book Confidential* is satisfactory.

DENNIS MILLER — THAT'S NEWS TO ME

You'd have to be a total Dennis Miller fanatic to get anything out of this CD-ROM. Miller cracks jokes in his *Saturday Night Live* style about events from 1993 that you've probably already forgotten about. His delivery is frequently off, and the editing is poor. So you can select one joke at a time by selecting the month, the general category, and then the topic. And then you can repeat the process. So what?

This product proves that there are some things that should never be interactive. ■

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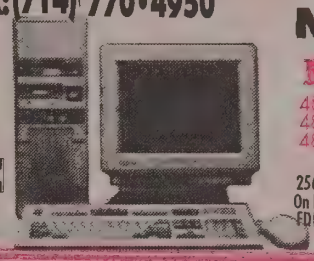

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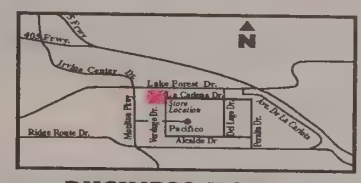

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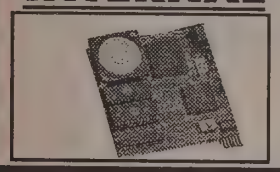

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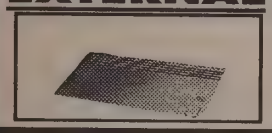

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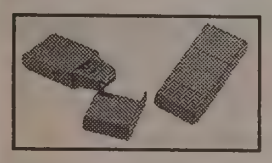

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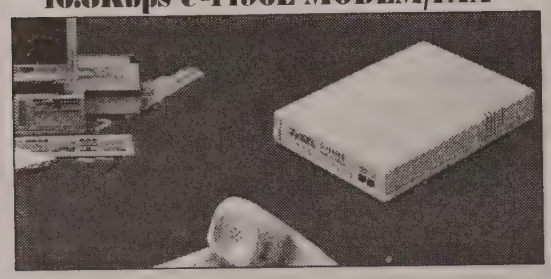

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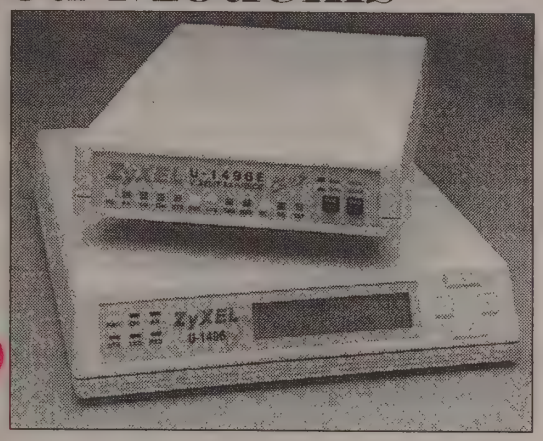

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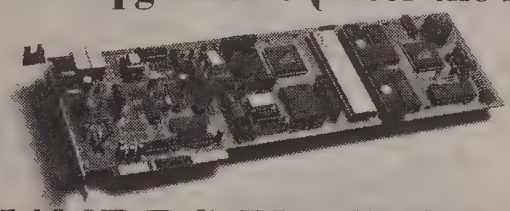

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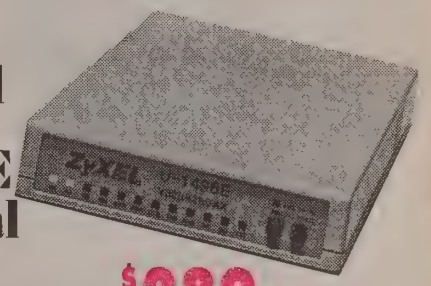

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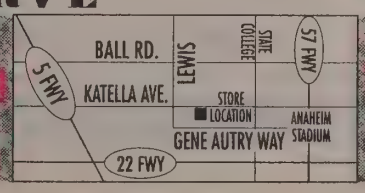

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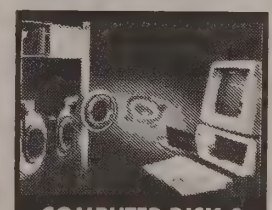
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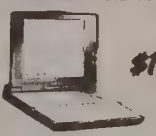
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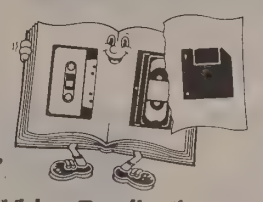

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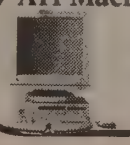

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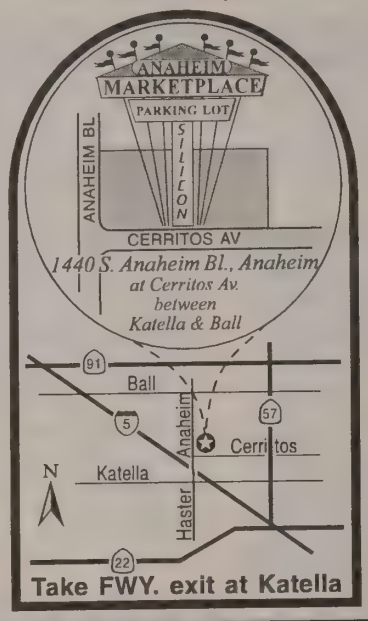

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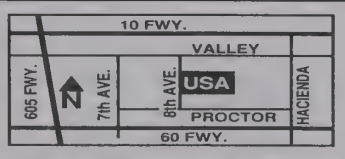

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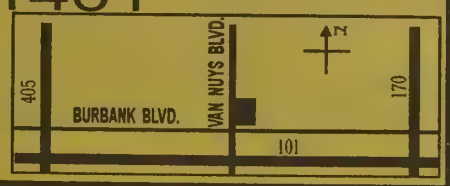

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Progress? Or Are We Just Fooling Ourselves?

I made the mistake

of going into my computer archives by accident. Thinking that I was reading current events I ended up having that strange experience you have when you read a two-week-old newspaper and, for a longer time than you'd like to admit, believe you're reading today's news. You invariably run into some clinker that triggers a return to reality. What's interesting, though, is that many of the old reports would still fly today.

Here's a report that came from Computergram International in 1991. If you read it tomorrow, you'd think there was some sort of breakthrough. It's titled, *Computer Recognizes Any Hand Script.*

Computers often require keyboard input while humans prefer scribing symbols on paper. That clash concerns the National Institute of Standards and Technology (NIST) and a substantial number of U.S. companies. An enormous number of applications await the development of computers that can recognize handwritten characters. The few devices now available for the task are error-prone and very expensive. They also require writing to be rigidly standard and scribed within the boundaries of a letter box. According to NIST, mathematician Charles Wilson has developed new letter recognition software that is quick and accurate. The new method allows computer recognition in 4 milliseconds with 80 percent accuracy on unconstrained hand printed characters and greater than 99 percent accuracy on machine print.

To develop the method, Wilson and his team worked with the U.S. Census Bureau to collect 2,000 handwriting samples. Those samples now are part of a database which contains 294,000 numbers and 728,700 letters. The database will be used as a standard to test new recognition software and hardware now under development. The algorithms for Wilson's recognition system are based on neural network technology that is meant to be implemented on parallel computers. Neural networks learn language and interpret images by the same principles a human brain would use. NIST researchers are now working with the Internal Revenue Service to develop a model recognition system. Additional information on Wilson's database, NIST Special Database 1, is available from NIST's Standard Reference Data Program in Gaithersburg, MD 20899.

You have to ask yourself **why** everyone **in the** pen-based **market was so** convinced **of its** success **and what they've done since to** rationalize **the fiasco.**

This may have fueled a pen-based mania that resulted in amazing craziness and peaked in mid-1992. I guess nobody noticed that the 80 % accuracy claim was hopeless. It meant the system would make constant errors.

Here's a report that appeared in PC Week in April of that year during the height of the frenzy. It seems spooky when you read it a mere two years later: "Pen computing climbed to the 486 level last week when MicroSlate unveiled its Datellite 400 tablet PC at Comdex/Spring. Also at the show, Dauphin, Sanyo and Kurta demonstrated new pen systems. MicroSlate's new 6-pound machine runs the Cx486SLC processor formally announced last week by Cyrix. The pen PC, which supports Go's PenPoint, Microsoft's Windows for Pen Computing and Communications Intelligence's PenDOS, comes with 4M bytes of RAM and a 62M- byte hard drive. Pricing will be announced when it becomes available in June or July. Analysts said pen computers running 486 chips will be attractive to users who want to run PenPoint and Pen Windows. Other hardware announcements were made at the show by Everex, ALR, Leading Edge and NCR."

You have to ask yourself why everyone in that market was so convinced of its success and what they've done since to rationalize the fiasco.

But pen computing is not the only dead end we've witnessed recently. Here's a 1992 PC Week item about the high hopes everyone had for MIPS and it'sRISC chip: "MIPS Computer Systems is readying its RISC architecture for a push into the PC market. At Comdex/Spring, MIPS officials outlined plans that include evolving the company's RISC architecture for broader markets. Next year, MIPS will deliver a high-end processor called the TFP for multiprocessing and scientific markets that promises Cray Y-MP performance. By mid-1993, MIPS will deliver a low-cost processor called the VRX for desktop and portable systems. The VRX, a Joint effort by MIPS and NEC, will offer the benefits of Risc performance at prices that appeal to PC makers. The chip will be suitable for notebook systems because it will operate at less than 2 watts when running at 80MHz, according to a company official."

Well, it's mid-1994 and where's the interest?

Priority Sort

What's interesting to me is that the trade magazines such as *PC Week* have so much news to convey that they literally dump it on the market and it's up to the reader to analyze it. What's considered important by the editors is only guesswork. Unless you are a visionary (few editors are trained for that lofty title) it's impossible to know where things are really going and how to order the importance of any given announcement. It's debatable what should be on the front page and what should be on page 66.

This makes you wonder what would happen if a large company announced a breakthrough technology whereby it could make a computer out of dried buffalo dung.

Digital Equipment Corporation announced today the DBD-100X microprocessor made entirely from dried Buffalo Dung. Using the newly patented dung-matrix optimization field effect, the processor can now be mass produced for desktop use, according to company officials. "It's a breakthrough as far as I can tell," said Wendy Flibber of Webber, Dweeb, Coleman and Robertson. "There's nothing else like it. It should revolutionize the business."

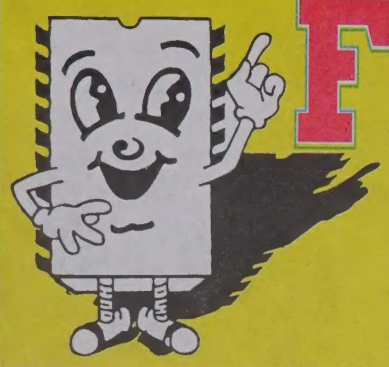
...and on and on...

Page one is my guess. Of course this seems silly, but there are plenty of assertions that run as news that are about as silly.

Much of this has to do with the ever-changing perceptions of the writers, editors and users themselves. This came home to me when, while rummaging through those same archives, I happened upon this interesting note from George Beinhorn. Dated February 10, 1989, it asked a question that would never be asked today, but back in 1989 was a good question: "I'm thinking of buying a laptop PC, but the thought of typing at a keyboard with hard disk attached sends shivers up my spine. Isn't the current laptop configuration a terribly crash-prone design? Do you have laptop hard-disk survival statistics? How do those machines manage to survive 350 keystrokes per minute, not to mention being shifted around on executive laps? Is it wiser to make do with a disk-based laptop?"

Now we're talking about putting a gigabyte drive into a laptop and nobody even considers something like Beinhorn's 1989 concerns.

Reality nowadays seems pretty tenuous. I'm reminded of the assertion I use on my radio show, Software/Hardtalk (KALW), "Remember everything you've learned this week will be null and void by this time next week." ■



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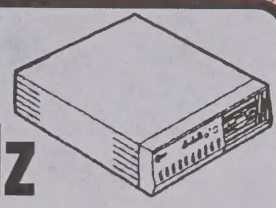

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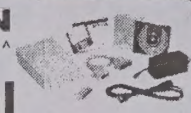

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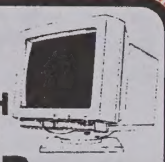

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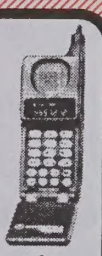

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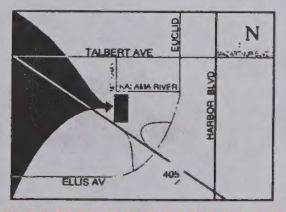

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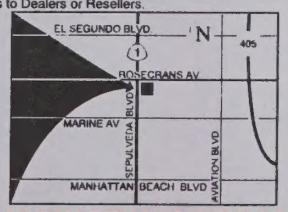

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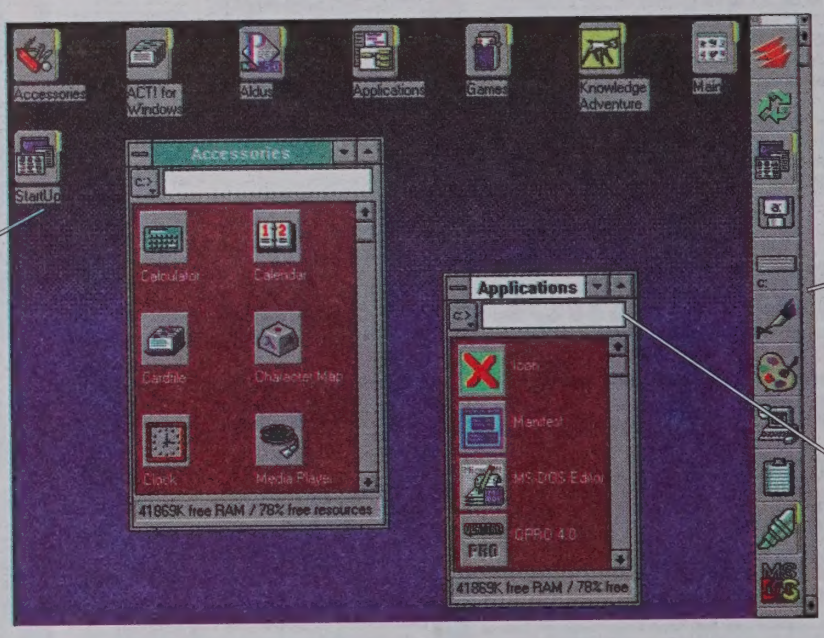

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